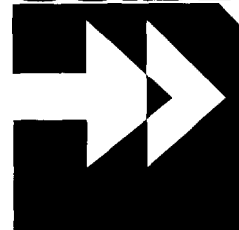


# EPSON®



U S E R ' S

**GUIDE**



*Stylus™* 400

# EPSON®

48-NOZZLE INK JET PRINTER

## Stylus. 400

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## User's Guide

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## FCC COMPLIANCE STATEMENT

### For United States Users

**This** equipment has been tested and found to comply with the limits for a Class **B** digital device, pursuant to Part **15** of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- ☐ **Reorient** or relocate the receiving antenna.
- ☐ Increase the separation between the equipment and receiver.
- ☐ Connect the equipment into an outlet on a circuit different from that to which the **receiver** is connected.
- ☐ Consult the dealer or an experienced radio/TV technician for help.

### WARNING

The connection of a non-shielded equipment interface cable to this equipment will invalidate the FCC Certification of this device and may cause interference levels which exceed the limits established by the FCC for **this** equipment. It is the responsibility of the user to obtain and use a shielded equipment interface cable with this device. If this equipment has more than one interface connector, do not leave cables connected to unused interfaces. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment

### For Canadian Users

This digital apparatus does not exceed the Class **B** limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.

**Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe B prescrites dans le règlement sur le brouillage radioélectrique édicté par le Ministère des Communications du Canada.**

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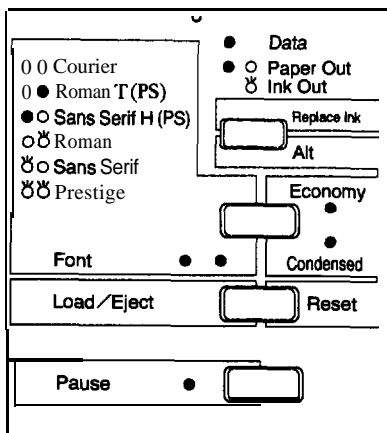
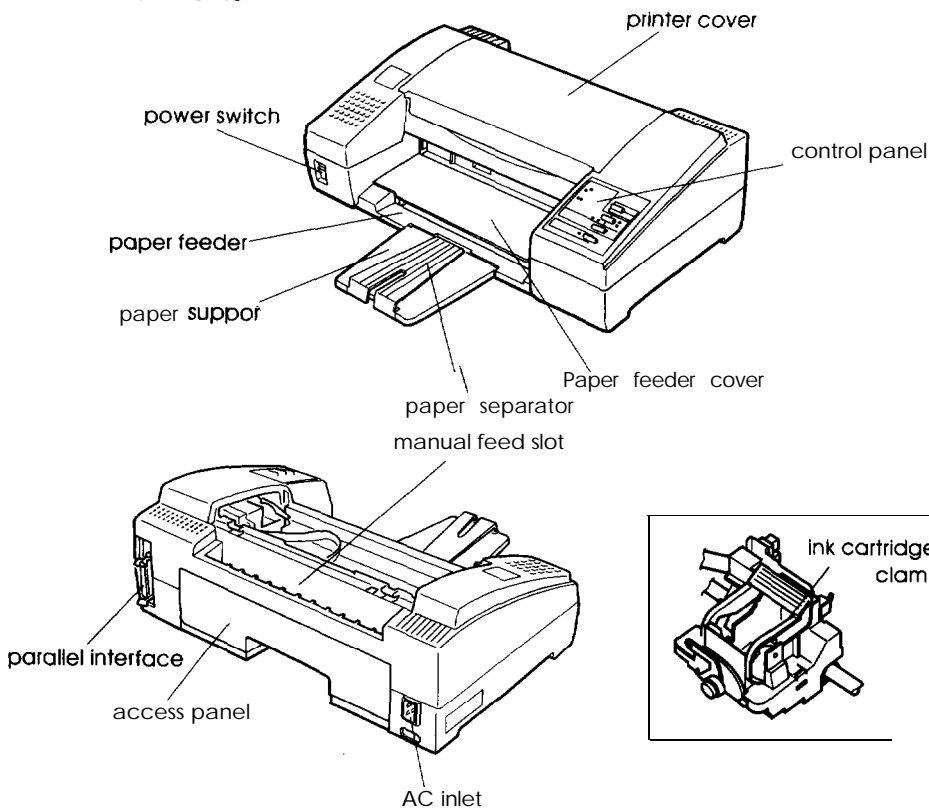
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## Printer Parts



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# ***Introduction***

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## ***How to Use This Manual***

Here's what you'll find in this book:

- ❑ Chapter 1 describes how to unpack and set up the printer. It also describes how to load the paper feeder and print a self test. Be sure to read and follow these instructions.
- ❑ Chapter 2 contains information that you will need to use special printer functions. It explains how to load paper manually and change printer settings from the control panel.
- ❑ Chapter 3 contains maintenance and troubleshooting information. If the printer does not operate properly or you have difficulties, see this chapter.
- ❑ The Appendix includes the printer specifications, commands, and character tables.
- ❑ A glossary of printer terms and an index are at the end.

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## Features

Your new EPSON® printer is a 48-nozzle ink jet printer, ideal for quiet, high-speed printing.

Your printer offers the following features:

- ❑ High print quality. EPSON's new ink jet technology delivers crisp 360 × 360 dots per inch (**dpi**) text and graphics.
- ❑ Flexible paper handling. Use the built-in paper feeder to load up to **100** sheets automatically. You can also insert envelopes or single pages manually without removing the paper supply.
- ❑ Fast printing speed. You can print up to **144** characters per second in **12-cpi** letter quality (**LQ**) mode.
- ❑ Quiet printing. Ink jet technology helps maintain a quiet working environment.
- ❑ Small footprint conserves your work space.
- ❑ EPSON **ESC / P 2™** This **enhanced** printer control language provides scalable fonts and improved graphics capability.
- ❑ Compatibility. Supports the EPSON **ESC / P®** commands widely used in application programs written for other EPSON printers.
- ❑ Convenience. Drop-in ink cartridge prints up to **700** pages (at **1000** characters/page, using the Roman font).



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## Energy Star Compliant



Your EPSON Stylus™ **400** printer complies with the U.S. Environmental Protection Agency's Energy Star program, which promotes the manufacture of energy-efficient printers, computers, and monitors.

The EPA estimates that if all desktop computers, printers, and other peripheral devices met Energy Star standards, energy cost savings would exceed **\$1 billion** annually and **carbon** dioxide emissions would be reduced by **20** million tons.

*The Energy Star emblem does not represent EPA endorsement of any product or service.*

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## Where United States Users Can Get Help

Epson America provides local customer support and service through a nationwide network of authorized EPSON dealers and Service Centers.

EPSON also provides the following support services through the EPSON **Connection**™ at (800) 922-8911:

- ☐ Assistance in locating your nearest Authorized EPSON Reseller or Service Center
- ☐ Technical assistance with the installation, configuration, and operation of EPSON products
- ☐ Information on **ESC / P 2** drivers for your software
- ☐ Sales of the **ESC/P** reference manual, which contains comprehensive information on **ESC/P 2** commands
- ☐ EPSON technical information library fax service

- ☐ Product literature with technical specifications on our current and new products
- ☐ Sales of ink cartridges, supplies, parts, documentation, and accessories for your EPSON product
- ☐ Customer Relations

### ***CompuServe@ On-line Support***

The fastest way to access helpful tips, specifications, drivers, application notes, and bulletins is through the Epson America Forum on CompuServe.

If you are not currently a member of CompuServe, you are eligible for a free introductory membership as an owner of an EPSON product. This membership entitles you to:

- ☐ An introductory **\$15** credit on CompuServe
- ☐ Your own user **ID** and password
- ☐ A complimentary subscription to *CompuServe Magazine*, CompuServe's monthly publication

To take advantage of this offer, call **(800) 848-8199** in the United States and Canada and ask for representative **#529**. In other countries, call **(614) 529-1611** or your local CompuServe access number.

If you are already a CompuServe member, simply type **GO EPSON** at the menu prompt to reach the Epson America Forum.

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## *For United Kingdom Users*

### *EPSON product guarantee*

Under the law, goods sold must comply with their description and must be of merchantable quality and fit for their purpose or correspond with any sample.

This guarantee does not affect the seller's legal obligation or the rights of the consumer in the "consumer transactions" under any Statute, including Sections **12** to **15** of the Sales of Goods Act, **1979**.

All EPSON Products, other than OEM products, are fully guaranteed against faulty operation or performance for a period of ONE YEAR from date of purchase by the user of the product.

All claims under this guarantee **MUST** be supported by evidence of purchase, normally the bill of sale **invoice**, and it is the responsibility of the claimant to furnish such proof. Epson (UK) Limited **does** not issue or operate any form of guarantee registration card.

Claims are made by the user **returning** the product to the supplier from whom it was purchased or, if this is impractical, to any EPSON supplier who also handles the same product. In the event of any difficulty, users are requested to contact the Service **Co-ordinator** Manager at Epson (UK) Limited.

Epson (UK) Limited, or EPSON Appointed Distributors, will at their discretion repair or replace part or all of the product to provide, in their **judgement**, a satisfactory performance of the product consistent with its age and apparent usage.

This guarantee covers the cost **of** both the parts and **labour** required to correct any malfunction of the equipment, but specifically excludes: wear and tear, consumables, physical damage due to incorrect use or misuse and damage or faulty operation due to unauthorized and inexperienced repair.

The guarantee is restricted to the performance of the product alone, and Epson (UK) Limited does not accept responsibility for any consequential loss or damage, nor claimed or implied performance, when the product is used in any combination with other equipment or program software.

Product guarantee may be invalidated as a result of excessive or inappropriate use, use in adverse environment or in conditions outside the specifications or if the product has been subjected to unapproved modifications.

The guarantee does not cover visits to the user's premises or the repair or commissioning of the product on site.

### *Use of options*

Epson (UK) Limited shall not be liable against any damages or problems arising from the use of any options or consumable products other than those designated as Original EPSON Products or EPSON Approved Products by Epson (UK) Limited.

## Safety information



### *Warning:*

*This appliance must be earthed. Refer to rating plate for voltage and check that the appliance voltage corresponds to the supply voltage.*

### *Important:*

*The wires in the mains lead fitted to this appliance are coloured in accordance with the following code:*

*Green and yellow—Earth*

*Blue—Neutral*

*Brown—Live*

As the **colours** of the wires in the mains lead of this appliance may not correspond with the **coloured** markings identifying the terminals in your plug, proceed as follows:

- ☐ The green and yellow wire must be connected to the terminal in ~~the~~ plug which is marked with the letter **E** or the earth symbol ( $\perp$ ) or **coloured** green or green and yellow.
- ☐ The blue wire must be connected to the terminal in the plug marked with the letter **N** or **coloured** black.
- ☐ The brown wire must be connected to the terminal in the plug marked with the letter **L** or **coloured** red.

If damage occurs to the plug, replace the cord set or consult a qualified electrician.

Replace fuses only with a fuse of the correct size and rating.

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## *Important Safety Instructions*

- ☐ Read all of these instructions before you set up your printer.
- ☐ Follow all warnings and instructions marked on the printer.
- ☐ Unplug the printer from the wall outlet before you clean it, and use a damp cloth for cleaning, not liquid or aerosol cleaners.
- ☐ Do not use your printer near water or spill any liquid on it.
- ☐ Do not place the printer **on an** unstable cart, stand, table, or other surface that may allow the printer to fall.
- ☐ Do not block any slots or openings in the cabinet. These are provided for the ventilation necessary to ensure reliable operation and protection from overheating. Placing the printer on a bed, sofa, rug, or other similar surface may block the openings. Also, do not place the printer in a built-in installation unless proper ventilation is provided.
- ☐ Never place the printer near or over a radiator or heat register.
- ☐ Use the type of power source indicated on the label. If you are not sure of the type of power available, consult your dealer or local power company.
- ☐ This printer may be equipped with a plug having a third (grounding) pin, which fits only into a grounding-type outlet. This is a safety feature. If you are unable to insert the plug into the outlet, have an electrician replace your obsolete outlet. Do not defeat the purpose of the grounding-type plug.
- ☐ Do not put your printer where the cord will be walked on.

- Q If you use an extension cord, make sure that the total of the ampere ratings on the products plugged into the extension cord does not exceed the extension cord's ampere rating. Also, make sure that the total of all products plugged into the wall outlet does not exceed **15** amperes.
- ❑ Never push objects of any kind into your printer because they may touch dangerous voltage points or short out parts that could result in a risk of fire or electric shock
  - ❑ Except as specifically explained in the user's manual, do not attempt to repair the printer yourself. This could expose you to dangerous voltage points or other risks. Refer **all** servicing in those compartments to service personnel.
  - ❑ Unplug the printer from the wall outlet and have it repaired by a qualified service person under the following conditions:

When the power cord or plug is damaged or frayed

If liquid has been spilled into it

If it has been exposed to rain or water

If it does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the printer to normal operation.

If it has been dropped or the cabinet has been damaged

If it exhibits a distinct change in performance, indicating a need for service

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## Warnings, Cautions, and Notes



*Warnings must be followed carefully to avoid bodily injury.*



*Cautions must be observed to avoid damage to your equipment.*

*Notes contain important information and useful tips on the operation of your printer.*



## Chapter 1

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## About Your Ink Jet Printer

If you're new to ink jet printers, you may wonder how they differ from dot matrix or laser printers. Two noticeable benefits of this technology are high print quality and quiet printing.

An ink jet printer produces cost-effective, quality print results. When you use the right paper, you get crisp, laser-sharp printouts usually associated with laser printers. And the ink cartridge inside your printer is easier to replace and more affordable than the toner cartridges used by lasers.

Inside the ink jet print head, tiny spray units, or jets, draw ink from the cartridge and then propel ink dots onto the page in the form of characters or graphics. Because the print head does not strike the page as it prints, it is much quieter than an impact printer such as a dot-matrix.

### A few precautions

Even if you are familiar with other types of printers, be sure to read through the following list of precautions to operate your ink jet printer safely and efficiently:

- ☐ Under normal circumstances, ink will not come out of the cartridge. If it does get on skin, wash it off with soap and water. If it gets in your eyes, flush them immediately with water.
- ☐ Keep the ink cartridges out of the reach of children.
- ☐ Do not dismantle the ink cartridges or try to refill them.
- ☐ After removing an empty cartridge, put it in a plastic bag for disposal.

- ❑ Once you install the ink cartridge, do not open the clamp or remove the ink cartridge except to replace it with a new one. The cartridge may become unusable otherwise.
- ❑ Install the ink cartridge immediately after you remove it from its package. Leaving the cartridge unpacked for a long time before use may result in poor print quality.
- ❑ Do not use an ink cartridge beyond its rated life expectancy. Ink cartridges are good up to the date printed on the cartridge carton.
- ❑ When moving the ink cartridge from a cold place to a warm one, let it sit for about one hour until the ink warms to the new temperature.
- ❑ Do not **turn** off the printer while printing or before the print head is capped. (The print head is capped when it is in the far right position.) The print head caps automatically if the printer receives no data for several seconds. You can also cap the print head by pressing the **Pause** button.
- ❑ Do not put your hand inside the printer or touch the cartridge during printing.
- ❑ Before transporting the printer, make sure the print head is capped, and do not remove the ink cartridge.
- ❑ Perform the cleaning cycle only if print quality has declined.
- ❑ Don't move the print head by hand.

## Choosing the right paper

One of the keys to getting great results with your ink jet printer is selecting the right paper. Paper absorbency is an especially important consideration. With paper that is too absorbent, the ink can bleed slightly, causing characters to blur. However, with paper that is not absorbent enough, the ink may take too long to dry and smear easily.

The finish and thickness of the paper are also important. Avoid paper that has a rough finish or a slick, coated finish. Also, avoid paper that is too thick or too thin. See the paper specifications in the Appendix for more information.

Most correspondence-quality paper works in your printer without problems. However, it is a good practice to test any paper or envelopes in your printer before buying large quantities.

To test a supply of paper, take a single sheet from the package and load it in the printer. Perform the self test and check the results. You should test both sides of the paper to determine which gives you the best quality printing. (When you load paper, remember that the printer prints on the bottom side of the paper.) If the ink does not bleed or smear, the paper should be suitable for use with your printer.

Because the drying speed for the ink depends on the pattern being printed, the type of paper used, and the temperature and humidity, some smudging or streaking may occur under certain conditions. If the ink does not dry quickly enough, try removing sheets one at a time as they finish printing.

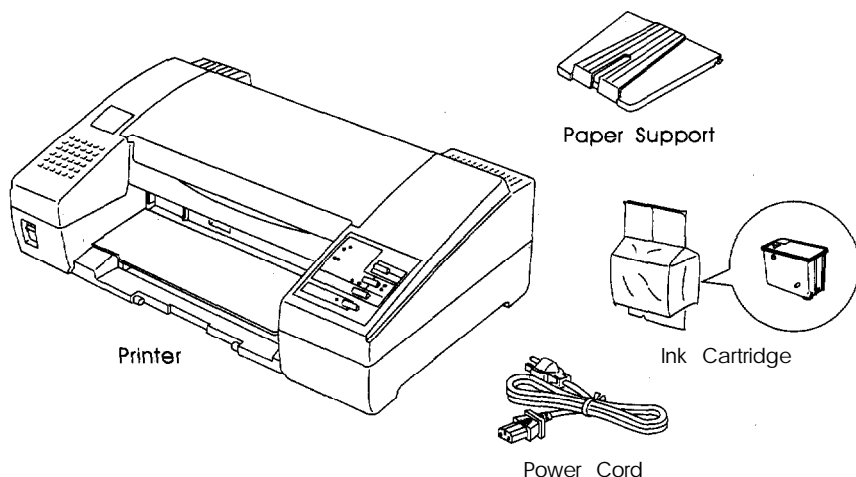
### *Note:*

*Ink jet printers are particularly sensitive to the condition of your paper. **Keep** unused paper in its original packaging material and store it in a cool, dry place.*

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## Unpacking the Printer

Your printer box should include these items:



In some locations, the power cord comes attached to the printer. The shape of the AC plug varies by country; be sure the plug included is the right shape for your location.



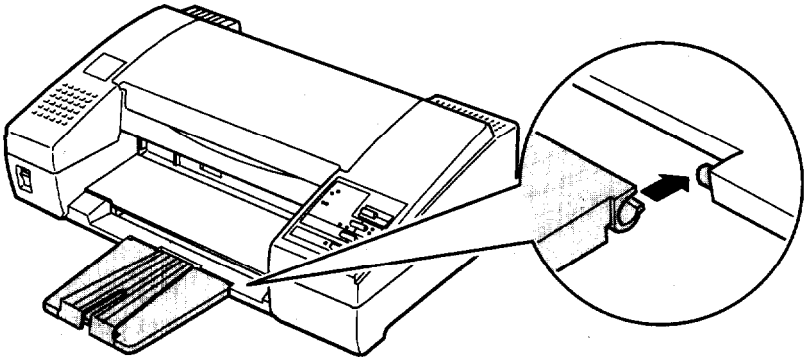
### **Caution:**

*You must remove all packing and protective materials packed with your printer before you can set it up and turn on the power. Follow the directions on the Notice Sheet (inserted in your printer) to remove these materials.*

Save all of the packaging and the protective materials in case you ever need to transport the printer.

## *Attaching the paper support*

You should install the paper support before you begin using the printer. To install it, push the paper support notches onto the mounting posts on the printer case.



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## *Choosing a Place for the Printer*

When selecting a location for your printer, follow these guidelines:

- ☐ Place the printer on a flat, horizontal, stable surface. If the printer is tilted or at an angle, it cannot operate properly.
- ☐ Place the printer close enough to the computer for the interface cable to reach it easily.
- ☐ Leave adequate room for easy operation and maintenance.
- ☐ Avoid using or storing the printer in places subject to rapid changes in temperature and humidity. Also keep it away from direct sunlight, strong light sources, or heat generating devices.
- ☐ Avoid places subject to shocks and vibrations.

- ☐ Place the printer where you can easily unplug the power cord.
- ☐ Avoid electrical outlets controlled by wall switches or automatic timers. Also, avoid outlets on the same circuit as large motors or other appliances that can cause fluctuations in line voltage.
- ☐ Keep the entire computer system away from potential sources of electromagnetic interference, such as loudspeakers or the base units of cordless telephones.
- ☐ Use a grounded power outlet; do not use an adapter plug.

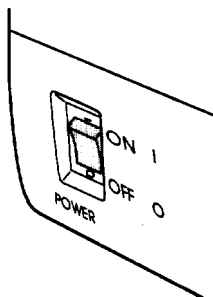
If you plan to use a printer stand, follow these guidelines:

- ☐ Use a stand that supports at least **10 kg (22 lb)**.
- ☐ Never use a stand that tilts the printer. It should always be kept level.
- ☐ Place cables so they do not interfere with paper feeding; secure them to a leg of the stand if possible.

---

## *Plugging in the Printer*

1. Make sure that the power switch is **turned** off. It is off when the 0 side of the switch is pressed down.



2. Check the label on the back of the printer to make sure the voltage required by the printer matches that of your electrical outlet. Also, make sure that you have the correct power cable for your power source.



**Caution:**

*It is not possible to adjust the printer for use at another voltage. If the rated voltage and your outlet voltage do not match, contact your dealer for assistance. Do not plug in the power cord.*

3. If the power cord is not attached to the printer, connect it to the AC inlet on the back of the printer.
4. Plug the power cord into a properly grounded electrical outlet.

---

## ***Installing the Ink Cartridge***

Each ink cartridge contains enough ink to print about **700** pages. The exact number of pages a single cartridge can print varies according to the amount of text and graphics on each page.



**Caution:**

*The ink cartridge is a self-contained unit. Under normal circumstances, ink will not leak from the cartridge. If ink does get on your hands, wash them thoroughly with soap and water. If ink gets into your eyes, flush them immediately with water.*

The first time you use your new printer, you need to charge the ink delivery system with ink. You need to perform this operation only once.

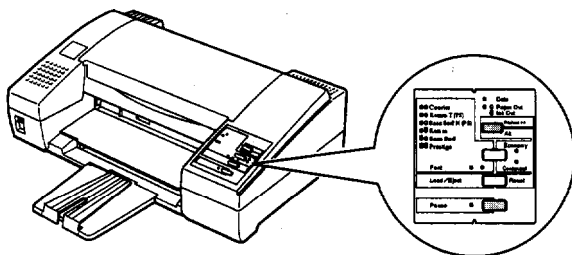


To prolong the life of your ink cartridge . . .

- ☐ Always wait until the print head stops moving before you turn off the printer. (If you need to stop printing quickly, press **Pause**, wait until the head stops **moving**, and then turn off the printer.)
- ☐ Never remove the ink cartridge except to replace it with a new one.
- ☐ Perform the cleaning cycle only if print quality has declined.
- ☐ Don't move the print head by hand.
- ☐ Leave the cartridge sealed until just before you install it.
- ☐ Select Economy mode to print quickly using less ink.

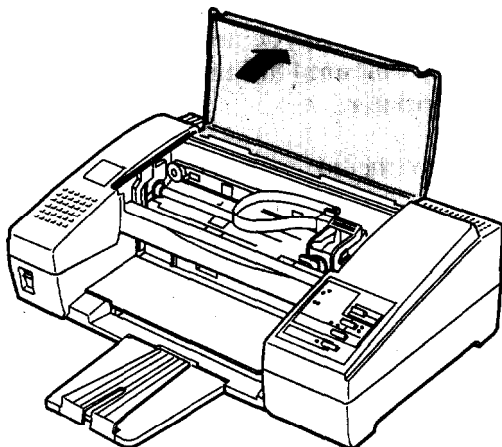
Follow these steps to install the ink cartridge:

1. Make sure the printer is **turned** off.
2. Hold down both the **Alt** and **Pause** buttons while you turn on the printer. Release the buttons after the printer starts initializing.

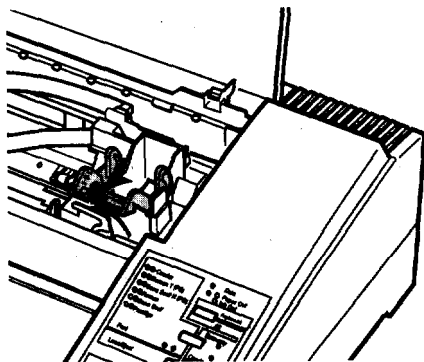


The print **head** moves to the ink cartridge replace position automatically and the **Pause** light begins blinking.

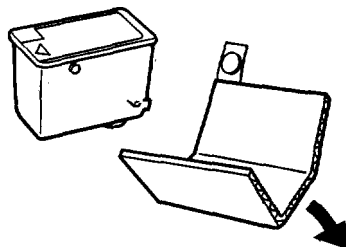
3. Open the printer cover.



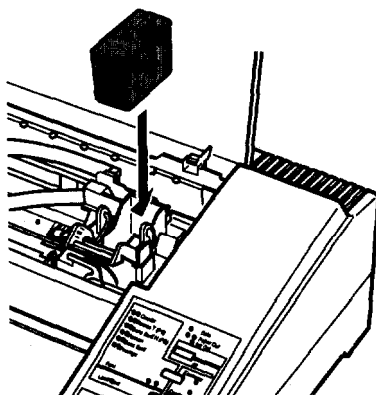
4. Pull the top of the ink cartridge clamp toward you to open it.



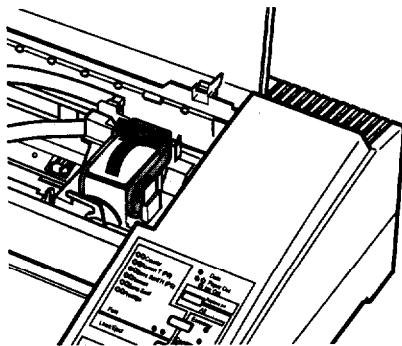
5. Open the foil package containing the ink cartridge and remove it from the protective **cardboard**. Make sure to remove the tape seal from the ink cartridge.



6. Lower the cartridge into the holder with the label face up and the arrow mark on the cartridge towards the arrow mark on the printer case.



7. Push the ink cartridge clamp toward the back of the printer to secure the cartridge.



8. Press the **Alt** button again to return the print head to the far right position and to charge the ink delivery system. Charging takes about one minute. The **Pause** light flashes throughout the cycle and turns off when ink charging is finished.



**Caution:**

*Do not turn off or reset the printer until the ink-charging cycle is complete.*

9. Close the printer cover.

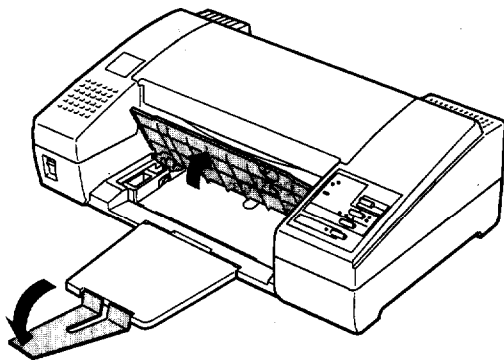
---

## Testing the Printer

After you install the ink cartridge, you can use the built-in self test to make sure the printer is working properly. You can run the self test with paper from the built-in paper feeder or by feeding a sheet manually. This section describes loading paper in the paper feeder.

### *Loading paper in the paper feeder*

1. Open the paper feeder cover and lift the paper separator.

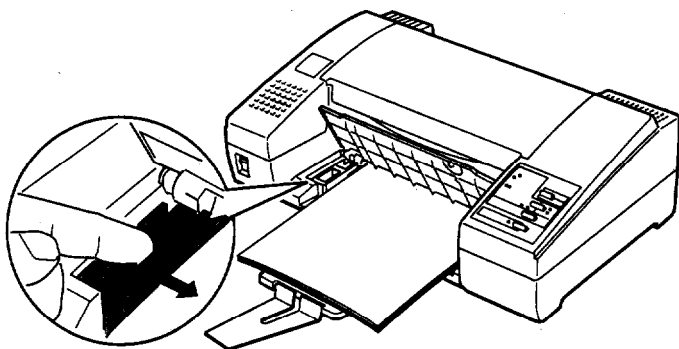


2. Fan a stack of letter-size or A4 paper; then tap it on a flat surface to even the edges.

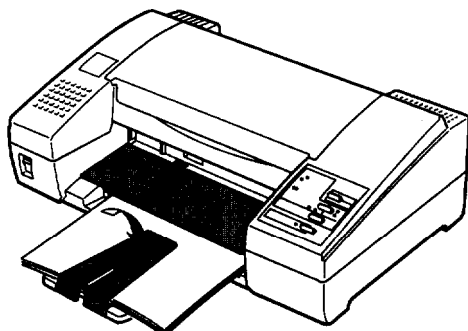
*Note:*

*The paper feeder holds up to 100 sheets (64 g/m<sup>2</sup> or 18 lb) maximum.*

3. Insert a stack of paper all the way into the paper feeder with the printable surface facedown. Align the right edge of the stack with the right edge of the paper feeder. Then move the left edge guide to match the width of your paper, as shown below.



4. Close the paper feeder cover and lower the paper separator to secure the paper stack.



Now you are ready to run the self test. For more about printing with the paper feeder, be sure to read “Tips for Using the Paper Feeder” at the end of this chapter.

## Running the self test

1. Make sure the printer is turned off.
2. While holding down the **Font** button, turn on the printer. It loads a sheet of paper automatically from the paper feeder and begins the self test. It prints on the first and last lines of page 1 to measure the page length. Then the printer prints characters in each font on page 2.

Here is part of a typical self test:

Courier

```
!"#$%&'()*+,-./0123456789:;<=>?@AB  
!"#$%&'()*+,-./0123456789:;<=>?@ABC  
!"#$%&'()*+,-./0123456789:;<=>?@ABCD  
#$%&'()*+,-./0123456789:;<=>?@ABCDE  
$%&'()*+,-./0123456789:;<=>?@ABCDEF  
%&'()*+,-./0123456789:;<=>?@ABCDEFG  
&'()*+,-./0123456789:;<=>?@ABCDEFGH  
Roman T  
'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNQRST  
()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNQRST  
)()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNQRST
```

3. The self test continues until the paper in the paper feeder runs out or you press the **Pause** button. To stop the test, press the **Pause** button. To resume the test, press the **Pause** button again.
4. To end the self test, press the **Pause** button to stop printing and then press the **Load/Eject** button to eject the paper.
5. Turn off the printer.

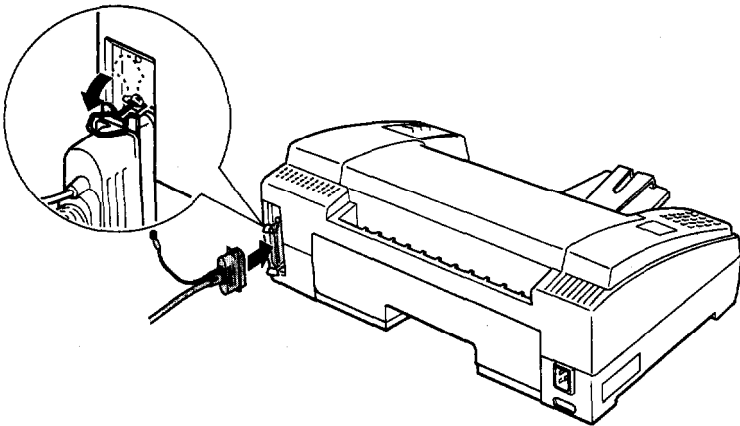
---

## *Connecting the Printer to Your Computer*

If the self test prints correctly, you are ready to connect your printer to the computer. You need a shielded twisted-pair parallel cable to connect your computer to the printer's built-in parallel interface.

Follow these steps:

1. Make sure both the printer and computer are turned off.
2. Plug the cable connector securely into the printer's interface connector.
3. Squeeze the wire clips together until they lock in place on both sides. If your cable has a ground wire, connect it to the ground connector above the interface connector.



4. Plug the other end of the cable into the computer's parallel interface. If there is a ground wire at the computer end of the cable, connect it to the ground connector at the back of the computer.



---

## *Using Software Programs*

To take full advantage of your printer's features, find the instructions for your software program or programs below. After the instructions for specific programs is a section of general information for other programs.

### *Microsoft® Windows 3.1™ and all Windows Programs*

If Windows is already installed on your system, follow the steps below to choose the printer. Then your printer will work correctly for all your Windows programs, such as Word for Windows, Lotus® 1-2-3® for Windows, and CorelDRAW®.

If Windows is not already installed on your system, run the setup program as instructed by the Windows documentation, and follow steps 4 through 10 below when you reach the section for choosing a printer.

1. In the window labeled **Main**, double click the **Control Panel** icon.
2. Double click the **Printers** icon.
3. Choose the **Add>** button on the right side of the screen.
4. In the list of printers box, select **EPSON Stylus 400**.

If Stylus 400 is not available, select **EPSON Stylus 300**, **EPSON Stylus 800**, or **EPSON AP-3250 ESC/P 2**.

If these are also not available, select **EPSON LQ-870**.

5. Choose the **Install** button. A dialog box may instruct you to insert a diskette.
6. If necessary, insert the diskette required.

7. Choose the **Setup** button.
8. Select **360 × 360** as the **Resolution**.
9. If you selected the LQ-870 printer, select **Sheet Feeder Bin 1** as the **Paper Source**. This step is very important for proper page breaks in your documents.
10. Choose the **OK** button.
11. Highlight EPSON Stylus 400 (or the printer you added) and click the button labeled **Set As Default Printer**.
12. Click the **Close** button.

You have now chosen the printer driver for Windows.

## *What is a Printer Driver?*

The software you use to enter and format your documents sends codes that run (or “drive”) your printer. These software codes select the font, margins, page size, line spacing, and other features of the document you are printing. Therefore, it is important that you choose the right printer driver and install it correctly from your software package. If there is a problem with the appearance of your document, a software setting could be the cause.

## **Fonts with Windows**

Microsoft Windows standard drivers use scalable **TrueType™** fonts rather than the fonts built into the printer. Windows fonts appear the same on the screen as they do in your printed document. (This feature is called *WYSIWYG*, What You See Is What You Get.) All programs that run under Windows can use the Windows printer driver to print their files. Therefore, you have access to the full range of TrueType fonts if you use the Windows Stylus 400, Stylus 300, Stylus 800, AP-3250, or LQ-870 driver.

If you want to use the printer's internal fonts and the TrueType fonts, contact Microsoft Windows Product Support.

## ***WordPerfect® 6.0 or 5.1 for MS-DOS®***

If your current version of WordPerfect does not support the EPSON Stylus 400, contact WordPerfect for details on obtaining the correct driver.

Until your Stylus 400 driver arrives, you may want to install the driver for one of the printers listed below:

EPSON ActionPrinter™ 3250  
EPSON LQ-870

### ***Note:***

*If you choose the LQ-870 printer in WordPerfect, be sure to select Sheet feeder Bin 1 in the Printer Setup screen.*

If you have already installed WordPerfect for MS-DOS and you want to add the WordPerfect Stylus 400 driver, follow the instructions below:

1. Select **File** and **Print** (or press Shift **F7**).
2. Type **S** (for **Select Printer**).

3. Type 2 (for **Additional Printers**).
4. Type 2 (for **Other Disk**).
5. Insert the diskette containing the EPSON Stylus **400** driver.
6. When you see **Directory for Printer files**, **C:\WPC60-DOS** or **C:\WP51\**, type **A:** or **B:**, depending on which drive you are using.
7. Select Stylus **400** from the list of EPSON printers on the diskette and press **Enter**. WordPerfect responds by **showing** the driver filename at the bottom of the screen.
8. Press **Enter**. The program copies the file into the WordPerfect directory.

You can access the printer's internal scalable fonts by selecting **Font** and **Base Font** (or **pressing CTRL F8** and then pressing **4**). WordPerfect displays a list of all the Stylus 400 fonts, including the scalable fonts.

### *Microsoft Word for MS-DOS*

Contact Microsoft's Word for MS-DOS Product Support to get the latest drivers.

### *Lotus 1-2-3 Version 3.X for MS-DOS*

To obtain the latest printer driver files for Lotus 1-2-3 for MS-DOS, contact Lotus technical support.

## Using Fonts

There are two sources for the fonts you use in your documents: internal and downloaded. In addition to the internal fonts built into your printer, many programs can send their own fonts to the printer in the same way they send your documents. For instance, Lotus 1-2-3 creates and sends the fonts that it uses to print spreadsheets.

Whether you use internal fonts or fonts downloaded from software, you will most likely need to select your fonts through your software.

---

## Setting Up Other Software Programs

To take full advantage of your printer's features, including **ESC/P 2**, choose one of the **ESC/P 2** printers on the list below. If none of these is listed, contact your software manufacturer for an update that includes one of these. Until you receive an update, choose another printer as close to the top of the list as **possible**.

Stylus 400			
Stylus 300		SQ-850/2550	
Stylus 800	ESC/P 2	LQ-850+/1050+	ESC/P
ActionPrinter 3250		LQ-550/1010	
LQ-100		LQ-500	
SQ-870/1170		LQ-2550	
LQ-870/1170		LQ-800/1000	
LQ-570/1070		LQ-1500	

If none of these printers is listed among your program's options, select the first one available from the following: **LQ**, **EX**, FX, LX, RX, **MX**, EPSON printer, Standard printer, and Draft printer.

After you select the most appropriate printer as described above, you may want to create and print a sample file with the fonts and formats that you use most often. printing the sample file shows you how the printer works with your application **program**.

If the printing results are not what you expect, see "Troubleshooting" in Chapter 3 or consult your computer or software manual.

---

## *Tips for Using the Paper Feeder*

Following the tips below will give you the best performance when printing with the paper feeder.

- ☐ Load paper into the paper feeder before you **turn** on the printer and send data. When the printer receives data from the computer, it loads a single sheet automatically and begins to print.
- ☐ If the printer runs out of paper during a print job, reload the paper feeder and then press the **Load/Eject** button to continue printing.
- ☐ Press the **Load/Eject** button if you need to eject a sheet of loaded paper.
- ☐ You can switch to manual loading to feed single sheets or envelopes without removing the paper supply from the paper feeder. For instructions, see "Loading Paper Manually" **in** Chapter 2.

- ❑ Because most application programs take care of the top and bottom margins, you should usually adjust the margins by using your programs, taking the printer's default loading position into account. You can change the default loading position. See "Using the Default-Setting Mode" in Chapter 2.
- ❑ The default page length for paper loaded from the paper feeder is **61** lines (letter-size paper) and **65** lines (**A4-size** paper). You can change it using your application program or printer commands, if necessary. See the Appendix for more about printer commands.
- ❑ If the ink does not dry fast enough, try removing sheets 'one at a time as they finish printing.

## Chapter 2

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# Using Other Printer Functions

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## *Loading Paper Manually*

You can load single sheets of paper or envelopes from the manual feed slot without removing the paper supply from the paper feeder.

### *Note:*

*If you need instructions for using the **paper** feeder, see page 1-13 in Chapter 1.*

## *Paper sizes*

You can use the manual feed slot to load single sheets of paper from **210 mm (8.3 inches)** to **216 mm (8.5 inches)** wide and from **257 mm (10.1 inches)** to **297 mm (11.7 inches)** long.

You can also load the following envelope sizes **from the** manual feed slot:

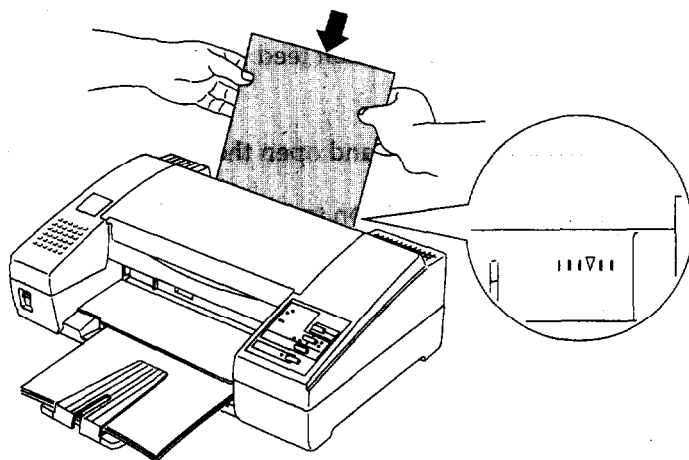
- ☐ Envelope No. **6**, **166 mm (6.5 inches)** wide × **92 mm (3.6 inches)**
- ☐ Envelope No. **10**, **240 mm (9.5 inches)** wide × **104 mm (4.1 inches)**

## *Printing on single sheets*

Follow these steps to load a single sheet in the manual feed slot:

1. Turn on the printer.

2. Insert a single sheet of paper into the slot until it meets resistance, aligning the right edge of the paper with the arrow mark on the printer. The printer automatically loads the sheet.



*Note:*

*If the sheet does not load straight, **press** the Load/Eject button to eject it. Then **try** loading it **again**.*

3. Now give your print command. When the printer receives the data, it begins printing.

When the printer finishes printing, it ejects the sheet automatically. If the sheet does not come all the way out, press the Load/Eject button.

4. You can print as many sheets as you like from the manual slot. When you **want to** switch to the paper feeder, press the Load/Eject button without inserting a sheet into the manual slot. The printer then loads a sheet of paper from the paper feeder.

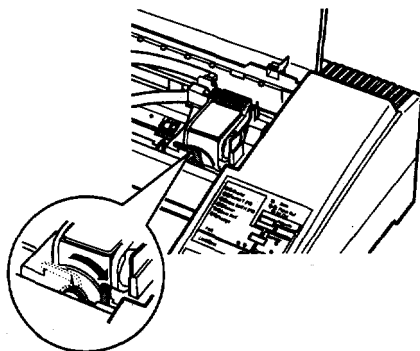
*Note:*

*If the ink does not dry fast enough, try removing sheets one at a time as they finish printing.*

## Printing on envelopes

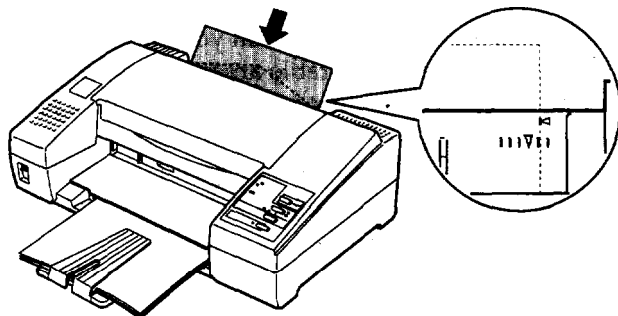
You can also use the manual feed slot to print on individual envelopes.

1. **Turn** on the printer and open the printer cover.
2. Press the **Pause** button to set the **Pause** light on.
3. Hold down the **Replace Ink (Alt)** button for several seconds and release the button when the carriage moves to the middle position. The **Pause** light begins blinking.
4. Turn the paper-thickness lever clockwise as far as it will go.



5. Press the **Replace Ink** button to **return** the carriage to the far right position. The **Pause** light comes on.
6. Press the **Pause** button to **turn** the **Pause** light off.
7. Close the printer cover.

8. Insert an envelope into the manual feed slot with the wide end at the top entering the printer first and the printable side face-up until it meets resistance. The printer loads the envelope to the print position automatically.



9. Now give your print command. The printer ejects the envelope automatically when it is finished printing.

*Note:*

- ☐ . *Make sure your application program keeps the printing entirely within the printable area of the envelope. For a description of the printable area, see the Appendix.*
- ☐ *Use envelopes only under normal temperature and humidity conditions.*
- ☐ *If the ink is not drying fast enough, try removing envelopes one at a time as they finish printing.*

When you switch back to the paper feeder, move the paper-thickness lever back to its normal position. To do this, first press the **Pause** button to turn the **Pause** light on. Next hold down the **Replace ink (Alt)** button until the carriage moves to the middle position. Then turn the paper-thickness lever all the way to the left (counterclockwise).

---

## *Tips for Maintaining the Correct Printing Position*

There is an area at the top and bottom edges of each sheet that the printer uses to load and feed the paper. You cannot print on these portions of the page.

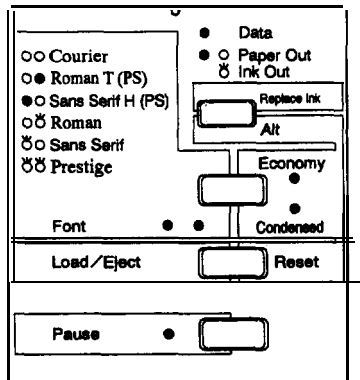
If the margins and page breaks in your document do not take into account these unprintable areas, you may find that the printing position is too low on the page or that part of one page is printed at the top of the next page. Your software may be set to print on continuous paper or to print too many lines on a page. To correct this problem, try the following

- ☐ Select single sheets or sheet feeder bin **1** in your software
- ☐ Reduce the maximum number of lines per page
- ☐ Reduce the top and bottom margins in your document, through your software application

---

## *Operating the Control Panel*

The indicator lights and buttons on the printer control panel give you easy control over most common printer operations.



## *Indicator lights*

### **Pause**

On when printing is paused.

### **Font**

Indicate the current font setting. These two lights go on and off when you press the **Font** button. The font menu on the control panel helps you determine which font is selected. For instructions on selecting fonts, see page 2-9.

### **Condensed**

On when the condensed printing mode is selected. When this mode is selected, the printer prints a condensed version of selected fonts. See page 2-10 for more information.

### **Economy**

On when the economy printing mode is selected. In economy mode the printer uses fewer dots per character. The print speed is the same in both economy and **LQ** mode, but the economy mode uses less ink. This mode is ideal for rough drafts.

### **Paper Out/Ink Out**

On when the printer runs out of paper.

Flashing indicates that the ink in the ink cartridge is low or the cartridge is empty. When only this light is flashing, the ink is low. When this light and the **Data** light are flashing at the same time, the cartridge is empty.

### **Data**

On when data remains in the printer's memory.

## **Buttons**

### **Pause**

Press this button to stop printing temporarily. Press it again to resume printing.

### **Load/Eject**

Press the **Load/Eject** button to load or eject a sheet of paper.

If you have been printing from the manual feed slot, pressing this button switches paper loading back to the paper feeder.

### **Font**

press this button to cycle through the font choices on the font menu. The **Font** lights indicate the current selection.

### **Alt/Replace ink**

Hold down this button for several seconds to move the carriage to the ink cartridge replace position when the printer is paused.

The **Alt** button also **alters** the functions of the other buttons. Hold down the **Alt** button and press another button to change the functions as follows:

### **Print Head Cleaning (Alt + Pause)**

Starts print head cleaning cycle. See “Cleaning the Print Head” on page **3-3** for details.

### **Reset (Alt + Load/Eject)**

Clears the printer’s buffer and initializes the printer settings to their factory settings. See “Initialization” on page A-10 for details.

### **Economy/Condensed (Alt + Font)**

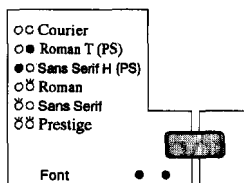
Selects economy printing or condensed mode. Press it again to turn your selection **off**. The indicator light goes on or off next to the mode you select.

---

## Selecting Character Fonts

Your printer has six built-in character fonts including two new EPSON fonts: the EPSON Roman **T** and EPSON **Sans** Serif **H**. (The Roman **T** is similar to the Times" font; **Sans** Serif **H** is similar to Helvetica?)

Press the **Font** button to select from the six fonts listed on the **control panel**. The two **Font** lights come on (○), go off (●), or flash (◐) to indicate the active font.



The table below lists the available fonts and shows how the **Font** lights appear for each selection.

Font lights	Fonts	Sample
○ ○	EPSON Courier	ABCDEFGHijk0123456789
○ ●	EPSON Roman T	ABCDEFGHijk0123456789
● ○	EPSON Sans Serif H	ABCDEFGHijk0123456789
◐ ◐	EPSON Roman	ABCDEFGHijk0123456789
◐ ○	EPSON Sans Serif	ABCDEFGHijk0123456789
◐ ◐	EPSON Prestige	ABCDEFGHijk0123456789

On ○ Off ● Flashing ◐

*Note:*

- Roman T and Sans Serif H fonts are available in proportional spacing only.
- Font selections you make with your application program usually override these control panel selections. For best results, use **your** application program to select fonts.



## Scalable fonts

The size of the Roman, **Sans** Serif, Roman **T**, and **Sans** Serif **H** fonts can be selected from **8** to **32** points in **2-point** increments by using your application program or by sending an **ESC / P 2** command. See the documentation that came with your application program for information on selecting the size of scalable fonts. See the Appendix for a list of **ESC/P 2** commands.

Roman

Epson      Epson      Epson      Epson

Roman T

Epson      Epson      Epson      Epson

**Sans** Serif

Epson      Epson      **Epson**      **Epson**

**Sans** Serif H

Epson      Epson      Epson      Epson

## Condensed printing

Condensed printing reduces the size of characters to approximately **60** percent of their normal width, allowing more characters to fit on a line. This is useful for spreadsheets and other applications where you need to print the maximum amount of information on a page.

You can condense the current font by pressing the **Economy/Condensed (Alt + Font)** button. (EPSON Roman **T** and EPSON **Sans** Serif **H** cannot be condensed.) You can condense printing that is **10 cpi**, **12 cpi**, and proportionally spaced. You cannot condense **15-cpi** printing.

### *Note:*

*If your application software controls fonts and can select the condensed mode, you should select fonts and condensed mode through the software rather than with the control panel. Program or command settings override panel switch settings.*

---

## Using the Default-Setting Mode

Your printer comes with a series of internal settings that control a variety of printer functions, such as print direction and loading position. Because these settings take effect each time you turn on the printer, they are called default settings.

The factory default settings are designed to meet the needs of most users, so you may not need to change them. The table below lists the features you can select in the default-setting mode.

For a detailed description of each setting, see “Default-setting descriptions,” below. To change a setting, see “Changing the default settings” on page 2-13.

Setting	Options
Character table*	<b>Italic</b> U.S.A., <b>Italic</b> France, <b>Italic</b> Germany, <b>italic</b> U.K., <b>Italic</b> Denmark I, <b>Italic</b> Sweden, <b>Italic</b> Italy, <b>Italic</b> Spain I, <b>PC437</b> , <b>PC850</b> , <b>PC860</b> , <b>PC861</b> , <b>PC863</b> , <b>PC865</b> , <b>BRASCII</b> , <b>Abicomp</b>
Auto print <b>direction</b>	On, Off
Network <b>interface</b> mode	On, Off
<b>Mixed</b> text/graphics mode	On, Off
Auto <b>line</b> feed	On, Off
Loading <b>position</b>	3 mm, <b>8.5 mm</b>

- In **certain** areas, the **following** character tables are **available**:  
**Italic** U.S.A., **Italic** France, **Italic** Germany, **Italic** U.K., **Italic** Denmark I, **Italic** Sweden, **Italic** Italy, **Italic** Spain I, **PC437**, **PC437 Greek**, **PC850**, **PC852**, **PC853**, **PC855**, **PC857**, **PC866**, **PC869**, **ISO 8859-7**, **ISO Latin 1T**, **MAZOWIA**, **Code MJK**, **Bulgaria**

*Note:*

*Most application software controls the character table and auto line feed. If your software controls these features, you may never need to set them with the control panel.*

## ***Default-setting descriptions***

### ***Character table***

Character tables contain the characters and symbols used by different languages. The printer prints text with the selected character table.

### ***Auto print direction***

The printer ordinarily prints text bidirectionally for speed and prints graphics characters unidirectionally for precise vertical alignment.

When auto print direction is set to on, the printer switches automatically between bidirectional (for text data) and unidirectional motion (for graphics data). When this feature is set to off, the print head motion is controlled by your software.

### ***Network interface mode***

If your printer is connected to a single computer, leave this feature off. If you want to use the printer in a network and share it among multiple computers, set this feature to on.

When this feature is set to on, data may be present in the printer's buffer even though the printer is not continuously printing. Always make sure the data light is off before turning off the printer.

### *Mixed text/graphics mode*

This feature is for software that has problems printing scalable font text combined with graphics. Leave the mixed text/graphics mode set to off unless you notice problems in your printout.

### *Auto line feed*

When the auto line feed feature is on, each carriage return (CR) code is accompanied by a line feed (**LF**) code. If your printed text is unexpectedly double-spaced, set this feature to off. If text lines print on top of each other, set it to on.

### *Loading position*

When you want to print more lines on a page, set this feature to 3 mm. For example, with **A4-size** paper and the loading position set to **8.5 mm**, you can print **65** lines per page with **1/6** inch line spacing, but with the 3 mm setting you can print **66** lines. If you set the top margin in your software, that setting is added to the default-setting value.

## *Changing the default settings*

To change the printer's default settings, you use the control panel buttons; the control panel lights show your selections.

Follow the steps below to make your changes:

1. Make sure the printer is turned off and paper is loaded in the paper feeder.
2. Hold down the **Pause** button and turn on the printer to enter the default-setting mode.

The printer loads a sheet of paper and prints a brief summary and instructions. It instructs you to select the language that you want messages printed in (English, French, German, Italian, or Spanish).

3. Press the **Font** button until the **Font** lights indicate the language of your choice; then press the **Alt** button to make your selection.

Language	Font light	
English	●	0
French	●	Ö
German	0	●
Italian	0	0
Spanish	0	Ö

On 0 Off ● Flashing Ö

After you press the **Alt** button, the printer prints the current default settings and the next instruction in the language you selected. Wait until printing is finished; then go to the next step.

4. To move to the feature you want to change, press the **Alt** button until the **Data** and **Paper Out** lights indicate the appropriate selection.

Default-setting menu	Data light	Paper Out light
Character table	●	0
Auto print direction	●	Ö
Network interface mode	0	●
Mixed text/graphics mode	0	0
Auto line feed	0	Ö
Loading position	Ö	●

On 0 Off ● Flashing Ö

For example, if you want to change the loading position setting, press the **Alt** button **until** the **Data** light flashes and the **Paper Out** light is off.

If you are changing the character-table setting, skip to “Changing the character-table setting” below.

5. Press the **Font** button until the **Font** lights match your desired setting as shown in the table below.

Default-setting menu	Settings	Font lights
Auto print direction	off	● ●
	on	● ○
Network Interface mode	off	● ●
	on	● ○
Mixed text/graphics mode	off	● ●
	on	● ○
Auto line feed	off	● ●
	on	● ○
Loading position	3 mm	● ●
	8.5 mm	● ○

On ○ Off ●

6. Repeat steps 4 and 5 to make all your changes.
7. Exit the default setting mode by turning the printer off.

## Changing the character-table setting

First follow steps 1 through 4 above. Then follow the steps below.

1. Press the **Load/Eject** button to select the submenu of the character-table menu, as shown in the table below.

Submenu	Economy light	Condensed light	Settings
Submenu 1	●	0	Italic U.S.A. Italic France Italic Germany Italic U.K. Italic Denmark I Italic Sweden Italic Italy Italic Spain I
Submenu 2	●	Ö	PC437 PC850 PC860 PC863 PC865 PC861 BRASCII Abicomp

On 0 Off ● Flashing 0

*Note:*

*If the table you printed in Step 3 on page 2-14 includes "Submenu 3," use that table to select the character table setting instead of the one above.*

2. Press the **Font** button to change the setting. As you move from setting to setting, the **Font** lights turn on, off, or flash to show your selection, as indicated in the following table.

Submenu	Settings	Font lights	
Submenu 1	Italic U.S.A.	●	●
	Italic France	●	○
	Italic Germany	●	◌̈
	Italic U.K.	○	●
	Italic Denmark I	○	○
	Italic Sweden	○	◌̈
	Italic Italy	◌̈	●
	Italic Spain I	◌̈	○
Submenu 2	PC437	●	●
	PC850	●	○
	PC860	●	◌̈
	PC863	○	●
	PC865	○	○
	PC861	○	◌̈
	BRASCII	◌̈	●
	Abicomp	◌̈	○

On ○ Off ● Flashing ◌̈

*Note:*

*If the table you printed in Step 3 on page 2-14 includes "Submenu 3," use that table to select the character table setting instead of the one above.*

- Exit the default-setting mode by turning off the printer.

*Note:*

- ☐ *You may exit the default-setting mode any time by turning off the printer. Any changes you have made remain in effect until you change them again.*
- ☐ *If you want to check the new default settings, enter the default-setting mode again and print the current settings. After you check them, turn the printer off to exit without making changes.*



## Chapter 3

# *Maintenance and Troubleshooting*

---

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---

## *Replacing the Ink Cartridge*

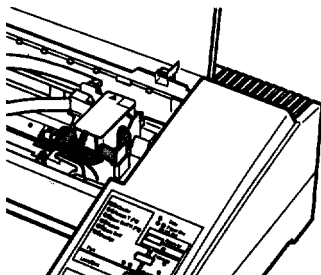
When the **Ink Out** light on the control panel flashes, the ink in the ink cartridge is low. The printer will continue printing until the cartridge is completely empty.

When the cartridge is out of ink, the printer stops printing, and the **Ink Out** and **Data** lights flash and the **Pause** light stays on. Printing will not resume until you insert a new cartridge.

It's a good idea to keep a spare ink cartridge on hand. Use EPSON ink cartridge SO20025 to ensure proper operation and preserve the life of the print head. Other brands of ink may clog the print head or damage it.

Follow these steps to remove the empty cartridge:

1. Make sure both the **Ink Out** and **Data** lights flash and the **Pause** light stays on.
2. Hold down the **Replace ink (Alt)** button for several seconds and release the button when the print head moves to the ink cartridge replace position.
3. Pull the ink cartridge clamp toward you to release the cartridge. (The clamp pushes the ink cartridge up so it is easy to grasp.)



4. Lift the cartridge out of the printer and dispose of it properly. Do not take the the used cartridge apart or try to refill it.



**Caution:**

*If ink does get on your hands, wash them thoroughly with soap and water. If ink gets into your eyes, flush them immediately with water.*

5. Turn to page **1-11** and follow the steps there to install the new cartridge.

**Note:**

*When you replace the cartridge, the printer will not recharge the ink delivery system again. However, the print head may start moving as the printer performs normal maintenance procedures. This can take up to 40 seconds to complete.*

---

## ***Cleaning the Print Head***

If print quality diminishes, use the printer's built-in print-head cleaning cycle to ensure that the nozzles are delivering ink properly. To avoid wasting ink, clean the print head only if print quality declines.

Follow these steps:

1. Make sure the printer is turned on and the **Pause** light is on. If the **Pause** light is not on, press the **Pause** button to pause the printer.
2. Hold down the **Alt** button **and** press the **Pause** button for two seconds. The cleaning cycle takes about **40** seconds. The **Pause** light flashes throughout the cycle and then stays on when the cleaning cycle is finished.
3. Press the **Pa use** button to resume printing.

---

## *Cleaning the Printer*

To keep your printer operating at its best, you should clean it thoroughly several times a year.

1. Make sure the printer is turned off.
2. Remove any paper from the paper feeder.
3. Use a soft brush to carefully brush away all dust and dirt.
4. If the outer case or the inside of the paper feeder is dirty, clean it with a soft, clean cloth dampened with mild detergent. Keep the printer cover closed to prevent water from getting inside.
5. If the inside of the printer accidentally gets soiled with ink, wipe it off with a damp cloth.



### *Caution:*

- ☐ *Never use alcohols or thinners to clean the printer; these chemicals can damage the components as well as the case.*
- ☐ *Be careful not to get water on the printer mechanism or electronic components.*
- ☐ *Do not use a hard or abrasive brush.*
- ☐ *Do not spray the inside of the printer with lubricants; unsuitable oils can damage the mechanism. Contact your dealer or a qualified service person if lubrication is needed.*

---

## *Transporting the Printer*

If you need to transport your printer some distance, carefully repack it using the original box and packing materials as follows:

1. Open the printer cover and make sure that the print head is capped in the far right position. If the print head is not capped, turn on the printer to cap it. Then turn off the printer.

*Note:*

*Do not remove the ink cartridge when you transport the printer. The cartridge may become unusable otherwise.*

2. Unplug the power cord from the electrical outlet; then disconnect the interface cable from the printer.
3. Remove the paper from the paper feeder.
4. Attach the protective material to the printer.
5. Repack the printer and power cord and place them in the original box.
6. Keep the printer flat in the box during transport.
7. If the print quality is poor after transport, clean the print head. See “Cleaning the Print Head.”

---

## *Troubleshooting*

Most problems you may have with your printer have simple solutions. Find your problem in this section and follow the recommended steps. If you cannot solve your problem, contact your dealer or a qualified service person for assistance.

## Error indicators

Some problems are identified with a pattern of error indicators, as listed in this table:

Data light	Paper Out/ Ink Out light	Pause light	Error status
	0	0	Paper out
–	Ö	–	Ink low
I    0	I    Ö	I    0	No ink or no ink cartridge
Ö	●	Ö	Paper jam or carriage error
All panel lights flashing			Fatal ink system error

On 0 Off ● Flashing Ö May be on or off –

---

### Paper out

---

No paper is loaded in the printer. Load paper again and press the Pause button to **turn** the Pause light off.

---

### Paper jam or carriage error

---

The paper is jammed inside the printer. Follow the steps on page 3-13.

A carriage error occurred. Turn off the printer. After a few seconds, turn it back on again.

---

### No ink or no ink cartridge

---

The ink cartridge may be empty or not installed. Install an ink cartridge or replace the one you have installed with a new one.

---

### Fatal ink system error

---

Contact your dealer.

## *Power supply*

---

### **The printer does not work and control panel lights are off.**

---

Check that the power cord is properly plugged into the electrical outlet.

Check that the side of the power switch with the vertical bar (|) is pressed down to **turn** on the printer.

If the electrical outlet is controlled by an outside switch or automatic timer, use a different outlet.

Plug another electrical device into the outlet to determine whether it is working.

---

### **The lights come on briefly but then go off and stay off.**

---

Check that the printer's voltage rating matches the voltage of your electrical outlet. If the voltages do not match, unplug the printer and contact your dealer immediately. Do not reconnect the power cord to an electrical outlet.

## *Printing*

---

### **All lights flash but nothing prints.**

---

Contact your dealer.

---

### **Printing stops and the Data and Pause lights flash.**

---

The paper is jammed inside the printer. Follow the steps on page **3-13**.

A carriage error has occurred. Turn off the printer. After a few seconds, **turn** it back on again.

---

**The Ink Out light flashes.**

---

The ink cartridge is almost out of **ink**. Get ready to replace the ink cartridge.

---

**The Ink Out and Data lights flash, and the Pause light stays on; the printer does not print.**

---

The ink cartridge may be empty or not installed. Install an ink cartridge **or** replace the one you have installed with a new one.

---

**Printing stops and the Pause light is on.**

---

Printing has been temporarily suspended. Press the **Pause** button to continue.

---

**The Pause light is off but nothing prints.**

---

The interface cable may not be plugged in securely. Check both ends of the cable between the printer and the computer. Make sure your interface cable meets both the printer and computer specifications.

Make sure your software is properly set up for your printer.

---

**Ink cartridges do not last long enough.**

---

See the information on page **1-9**.



---

## Printed output is not what you expect

---

If the printer does not print correctly, try the self test described on page **1-13**. If the self test works properly, **the** printer is all right and the problem probably lies in the **computer**, the software, or the interface cable. (Be sure to use a shielded cable.) If the self test does not work, contact your dealer or a qualified service person..

Check the printer settings within your software program.

Use the hex dump mode to pinpoint communication problems between the printer and your application program. To enter the hex dump mode, hold down the **Load/Eject** and **Font** buttons and turn on the printer. Then send data from the computer. The printer prints the exact codes it receives from the computer in hexadecimal format. You can analyze this information to isolate problems.

---

## The printer sounds like it is printing, but nothing prints.

---

The print head nozzles may be clogged. **Turn** the **Pause** light on. Next, hold down the **Alt** button and press the **Pause** button for two seconds to clean the print head. See “Cleaning the **Print Head**” earlier in this chapter.

---

## Dots are missing in printed characters or graphics.

---

The print head nozzles may be clogged. **Turn** the **Pause** light on. Next, hold down the **Alt** button and press the **Pause** button for two seconds to clean the print head. See “Cleaning the **Print Head**” earlier in this chapter.

Set the Mixed text/graphics mode to on in the default-settings mode. See “Using the Default-Settings Mode” in Chapter **2**.

Set the Network interface mode to on in the default-settings mode. See “Using the Default-Settings Mode” in Chapter **2**.

---

### **The printed image is light or faint.**

---

The print head nozzles may be clogged. Turn the **Pause** light on. Next, hold down the **Alt** button and press the **Pause** button for two **seconds** to clean the print head. See “Cleaning the Print Head” earlier in this chapter.

The paper-thickness lever may not be set correctly. The raised position for envelopes may cause faint printouts if used for plain paper. For details on the paper-thickness lever, see “Loading Paper Manually” in Chapter 2.

Your paper may be moist or damp. Ink jet printers are **sensitive** to moisture absorbed by the paper. Do not store your paper in a damp or humid environment.

You may have selected the economy **printing** mode. To exit this mode, press the **Economy/Condensed (Alt + Font)** button until the **Economy** light goes off.

---

### **The printed image is blurred.**

---

You may not be using the correct type of paper. Although most types of **business-correspondence-quality** paper work well with your printer, you should always test the paper you want to use before buying it in large quantities. See Chapter 1 for tips on choosing the right paper.

You may not be printing on the correct side of the paper. Test both sides to determine which side gives you the best print quality.

Your paper may be moist or damp. Do not store your paper in a **damp** or humid environment.

---

### **The typesyles or characters set with your software do not print.**

---

Check that the program is correctly configured for your printer.

---

**The font selected on the control panel does not print**

---

Software settings override the control panel settings. Use the font settings in your software.

---

**The wrong characters are printed.**

---

The wrong character table is selected. Change the character table as described in “Using the Default-Setting Mode” in Chapter 2.

---

**Printing starts too high or too low on the page.**

---

Adjust the top margin using your software program.

---

**All the text prints on the same line.**

---

Set auto line feed to on in the default-setting mode so that the printer automatically adds a line-feed code to each carriage **return**. See “Using the Default-Setting Mode” in Chapter 2.

---

**The text prints an extra blank line between each text line.**

---

Set auto line feed to off in the default-setting mode so that two line-feed signals are not sent. See “Using the Default-Setting Mode” in Chapter 2.

Line spacing is incorrect. Adjust the line-space setting with your software.

---

**Printed page length is not as expected.**

---

The page length setting may not match the length of the paper loaded **in** the printer. Change the page length setting within your software to match the paper you are using.

## *Paper handling*

---

### **The printer does not print; the Paper Out and Pause lights are on.**

---

No paper is loaded in the printer. Load paper in the paper feeder or from the manual feed slot; then press the **Pause** button to set the **Pa use** light off.

---

### **Single sheets do not feed properly from the paper feeder.**

---

Too many sheets are loaded **in** the paper feeder. Remove the paper from the paper feeder and reload up to **100** sheets.

The paper is too thick or too thin to be fed. Make sure that the paper you are using meets the specifications. Some paper types require manual feeding. See “Technical Specifications” in the Appendix.

---

### **The printer loads more than one sheet at a time.**

---

The paper is too thin. Make sure that the paper you are using meets the specifications. Some paper types require manual feeding. See “Technical Specifications” in the Appendix.

---

### **The ejected paper is wrinkled.**

---

The paper is too thin or is damp. Make sure that the paper you are using meets the specifications. See “Technical Specifications” in the Appendix. Do not store your paper in a damp or humid environment.

---

### **The paper does not fully eject.**

---

Use the Load/Eject button to eject the page.

The paper may be too long to be loaded from the manual feed slot. Use paper that is within the specified size. See “Technical Specifications” in the Appendix.

---

### **Paper is loaded crookedly from the manual feed slot.**

---

Use the Load/Eject button to eject the page. Then insert a new sheet straight into the manual feed slot.

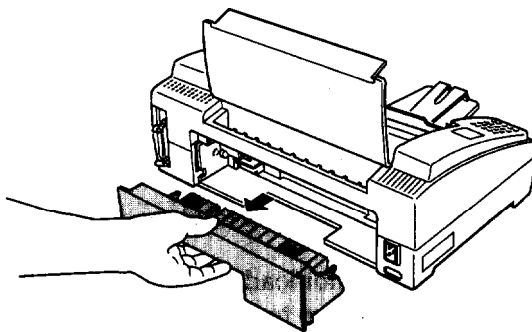
---

### **The paper is jammed inside the printer.**

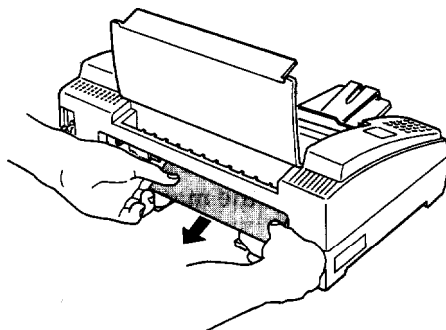
---

To clear a paper jam follow the steps below.

1. Open the printer cover and the paper feeder cover.
2. Pull the access panel away from the **rear** of the printer, as shown below.



3. Pull the paper out gently. If it tears, make sure you remove any remaining pieces.



4. If the paper is caught in the paper ejection area, gently pull it out of the printer.
5. Push the access panel back to the rear of the printer and close the printer cover and the paper feeder cover.

### *Preventing paper feed and paper jam problems*

If you have frequent paper feed or paper jam problems, try these corrective measures:

- ☐ Use a higher-quality paper, one that is not too thin or rough. Some types of paper require manual feeding. See Chapter 2.
- ☐ Fan the stack of paper and straighten it before loading.
- ☐ Be sure that you do not load too much paper in the paper feeder. You can load up to **100** pages.
- ☐ Try turning the stack of paper over in the paper feeder. Most packages of paper indicate the best side with an arrow on the end of the package. Make sure the best side is loaded face down.

---

# Appendix

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---

## Technical Specifications

### Printer specifications

#### Printing

Printing method: Thermal 48-nozzle ink jet matrix

Printable columns and printing speed:

Character pitch (characters per inch)	Printable columns	Printing speed (characters per second)
10	80	120
12	96	144
15	120	180
17 (10 condensed)	137	206
20 (12 condensed)	160	240

Maximum resolution: 360 x 360 dpi text, graphics

Printing direction: Bidirectional with logic-seeking for text and graphics. (The auto print direction can be set in the default-setting mode.)

Line spacing: 1/6 inch, 1/8 inch, or programmable in 1/360-inch increments

Paper feed speed: 110 milliseconds per 1/6-inch line

Input buffer: **8KB** when mixed text/graphics  
option in default-setting mode is set to ON

24KB when mixed text/graphics  
option in default-setting mode is set to OFF



Bitmap fonts:

Font	10 cpi	12 cpi	15 cpi	Proportional
EPSON Roman	0	0	0	0
EPSON <b>Sans</b> Serif	0	0	0	0
EPSON <b>Courier</b>	0	0	0	—
EPSON <b>Prestige</b>	0	0	0	—

Select other **font/pitch combinations** using **ESC/P 2 commands**. See the command summary later in **this** chapter for a **list** of commands.

Scalable fonts:

Font	Min pt	Max pt	Increments
EPSON Roman	8	32	2 pt
EPSON <b>Sans</b> Serif	8	32	2 pt
EPSON Roman T	8	32	2 pt
EPSON <b>Sans</b> Serif H	8	32	2 pt

Character tables:

**8** graphic character tables.  
(**14** graphic character tables are available in certain areas.)

Character sets:

**14 international** character sets and 1 legal

## Paper

Single sheets (paper feeder):

Size Letter (**8.5 × 11** (210 × 297 mm))  
 Thickness **0.065 to 0.14 mm (0.0026 to 0.0055 inches)**  
**64 to 90 g/m<sup>2</sup> (18 to 24 lb)**  
☐ **90 g/m<sup>2</sup> (24 lb)** paper under normal

Quality

Bond paper, plain paper

Single sheets (manual insertion):

Width	210 to 216 mm (8.3 to 8.5 inches)
Length	257 to 297 mm (10.1 to 11.7 inches)
Thickness	0.065 to 0.11 mm (0.0026 to 0.0043 inches)
Weight	52 to 90 g/m <sup>2</sup> (14 to 24 lb)
Quality	Bond paper, plain paper

Note:

*Use recycled paper under normal temperature and humidity conditions only. Poor quality paper may reduce print quality and cause paper jams and other problems. If you encounter problems, switch to a higher grade of paper.*

Envelopes (Manual insertion):

Size	No. 6 166 × 92 mm (6.5 × 3.6 inches) No. 10 240 × 104 mm (9.5 × 4.1 inches)
Thickness	0.16 to 0.52 mm (0.0063 to 0.0197 inches)
Weight	45 to 90 g/m <sup>2</sup> (12 to 24 lb)

☐ Use envelopes only under normal temperature and humidity conditions.

☐ Insert envelopes long side first; use the manual feed slot only.

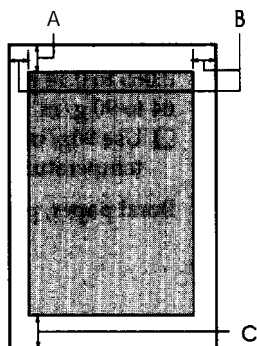
Quality

Bond paper, plain paper, air mail

☐ Difference in thickness within the printable area must be less than 0.25 mm.

Printable area:

Single sheets (paper feeder and manual insertion)



- A** The minimum top margin is **3.0 mm (0.12 inches)**.
- B** The minimum left margin is **3.0 mm (0.12 inches)**.  
The minimum right margin is:  
**3.0 mm (0.12 inches)** for the **A4-size** paper feeder  
**9.0 mm (0.35 inches)** for the letter-size paper feeder  
**3 mm (0.12 inch)** for manual insertion
- C** The minimum bottom margin is **13.0 mm (0.51 inches)**.

Paper-feed method:	Friction
Ink cartridge (S020025):	
Color:	Black
Print capacity:	Approximately <b>0.7</b> million characters in letter quality mode
Cartridge life:	2 years from production date (The cartridge life may vary, depending on how often you use the print head cleaning function.)
Temperature:	Storage: <b>-30 to 40°C (-22 to 104°F)</b> Transit: <b>-30 to 60°C (-22 to 140°F)</b> 1 month at <b>40°C (104°F)</b> 120 hours at <b>60°C (140°F)</b>  <input type="checkbox"/> The ink freezes at <b>-3°C (26.6°F)</b> ; if this happens, it takes the cartridge approximately two hours to thaw at <b>25°C (77°F)</b> .

MTBF:	4,000 power-on hours
Total print volume:	25,000 pages (1000 characters/A4 or letter)
Dimensions and weight:	
Height	159 mm (6.3 inches)
Width	435 mm (17.1 inches)
Depth	264 mm (10.4 inches) (without paper support)
	400 mm (15.7 inches) (with paper support)
Weight	4.8 kg (10.6 lb)

## *Electrical*

### 120 V model:

Rated voltage	AC120V
Input voltage range	AC 103.5 to 132 V
Rated frequency range	<b>50 to 60 Hz</b>
Input frequency range	<b>49.5 to 60.5 Hz</b>
Rated current	<b>0.4 A</b>
Power consumption	<b>Approx. 13 W</b> (during self-test printing in <b>LQ</b> mode at <b>10 cpi</b> )

### 220-240 V model:

Rated voltage	<b>AC 220 to 240 V</b>
Input voltage range	AC <b>198 to 264 V</b>
Rated frequency range	<b>50 to 60 Hz</b>
Input frequency range	<b>49.5 to 60.5 Hz</b>
Rated current	<b>0.2 A</b>
Power consumption	<b>Approx. 13 W</b> (during self-test printing in <b>LQ</b> mode at <b>10 cpi</b> )

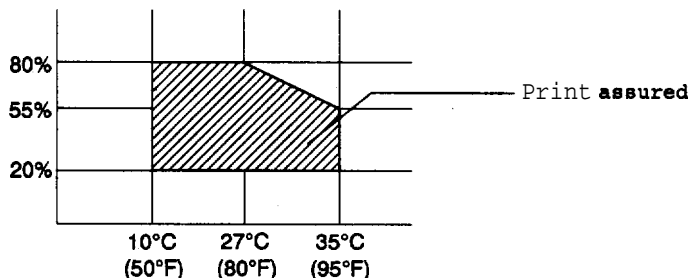
### Note:

*Check the label on the back of the printer for the printer voltage.*

## Environmental

Temperature:      Operation:      10° to 35°C (50° to 95°F)  
Storage:            -20° to 50°C (-4° to 122°F)

Humidity (without condensation):  
Operation:          20 to 80% RH  
Storage:            5 to 85% RH



## Safety approvals

Safety standards:

US model:            UL1950 with D3, CSA22.2 #950 with D3  
European model:    EN 60950 (TÜV)  
IEC 950 (SEMKO, DEMKO, NEMKO, SETI)

R.F.I.:

US model:            FCC Part 15 Subpart B class B  
European model:    Vfg. 243 (VDE 0878 part 3, part 30)  
EN 55022 (CISPR Pub 22) class B

## Interface specifications

Your printer is equipped with an 8-bit parallel interface.

### Specifications and pin assignments

The built-in parallel interface has the following characteristics:

Data format:	<b>8-bit parallel</b>
Synchronization:	<u>STROBE</u> pulse
Handshake timing	BUSY and <u>ACKNLG</u> signals
Signal level:	TTL compatible
Connector:	<b>36-pin 57-30360 Amphenol</b> connector or equivalent

The table below provides the connector pin assignments and describes their respective interface signals.

Signal Pin	Return Pin	Signal	Direction	Description
1	19	<u>STROBE</u>	IN	<u>STROBE</u> pulse to read data. Pulse width must be more than 0.5 $\mu$ s at the receiving terminal.
2	20	DATA 1	IN	These signals represent information in bits 1 to 8 of parallel data respectively. Each signal is at HIGH level when data is logical 1 and LOW when it is logical 0.
3	21	DATA 2	IN	
4	22	DATA 3	IN	
5	23	DATA 4	IN	
6	24	DATA 5	IN	
7	25	DATA 6	IN	
8	26	DATA 7	IN	
9	27	DATA 8	IN	
10	28	<u>ACKNLG</u>	OUT	About an 11- $\mu$ s pulse. LOW indicates that data has been received and that the printer is ready to accept more data.

Signal Pin	Return Pin	Signal	Direction	Description
11	29	BUSY	OUT	A HIGH signal indicates the printer cannot receive data. The signal goes HIGH in the following cases: 1) During data entry (for each character) 2) During printing 3) When the Pause button is pressed 4) During an error state
12	30	PE	OUT	A HIGH signal indicates that the printer is out of paper.
13	-	SLCT	OUT	Pulled up to 5 V through 1.0 k $\Omega$ resistance
14	-	AUTO FEED XT	IN	When this signal is LOW, the paper is automatically fed one line after printing.
15	-	NC		Not used
16	-	GND		Logic ground level
17	-	CHASSIS GND	-	Printer's chassis ground, which is isolated from the logic ground
18	-	NC		Not used
19-30	-	GND		Twisted-pair return signal ground level
31	16	$\overline{\text{INIT}}$	IN	When this level becomes LOW, the printer controller is reset to its state when the power is first turned on and the print buffer is cleared. This level is normally HIGH; its pulse width must be more than 50 $\mu\text{s}$ at the receiving terminal.

Signal Pin	Return Pin	Signal	Direction	Description
32	-	<u>ERROR</u>	OUT	This level becomes LOW when the printer: 1) Is out of paper 2) The Pause button is pressed 3) Is In an error state
33	-	GND		Same as for pins 19-30
34	-	NC	-	Not used
35	-		OUT	Pulled up to 5 V through 1.0 k $\Omega$ resistance
36	-	NC	IN	Not used

Note:

- ☐ The column heading "Direction" refers to the *direction* of signal flow as *viewed* from the printer.
- ☐ "Return" denotes the twisted-pair return, to be connected at signal ground level. For the interface wiring, be sure to use a twisted-pair cable for each signal and to *complete* the connection on the return side.
- ☐ A//interface conditions are *based* on the TTL level. Both the *rise* and *fall* times of *each signal* must be less than 0.2 microseconds.
- ☐ Data transfer must be carried out by observing the ACKNLG or BUSY signal. Data *transfer* to this printer can be carried out *only* after receipt of the ACKNLG signal or when the *BUSY* signal is LOW.

## Initialization

The printer can be initialized (returned to a fixed set of conditions) in three ways:

Hardware initialization	<p>* The power is turned on.</p> <p>*The printer receives an <u>INIT</u> signal from the parallel interface (pin 31 goes LOW). The following condition then results:</p> <ol style="list-style-type: none"> <li>1) The printer mechanism <b>is initialized</b>.</li> <li>2) The input data buffer is cleared.</li> <li>3) The download character set is cleared.</li> <li>4) The print buffer <b>is</b> cleared.</li> <li>5) The default values are set.</li> </ol>
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Software initialization	<p>* Software sends the <b>ESC @</b> (Initialize the printer) command.</p> <p>The following condition then results:</p> <p>1) The <b>print</b> buffer is cleared.</p> <p>2) The <b>default</b> values are set. (The last panel <b>settings</b> are maintained.)</p>
Control panel initialization	<p>* Hold down the <b>Alt</b> button and press the Load/Eject button.</p> <p>The <b>following results</b>:</p> <p>1) The <b>printer</b> mechanism is <b>initialized</b>.</p> <p>2) The <b>input</b> data buffer is cleared.</p> <p>3) The download character set is cleared.</p> <p>4) The <b>print</b> buffer is cleared.</p> <p>5) The default values are set. (The <b>last</b> panel settings are kept.)</p>

## Default settings

The table below shows the default settings that take effect when the printer is initialized.

Item	Default setting
Top-of-form position	Current paper position
Page length	Single sheets: <b>65 lines</b> for <b>A4-size</b> paper <b>61 lines</b> for <b>letter-size</b> paper <b>22 inches</b> for manual insertion
Left and right margins	Cancelled
Line spacing	1/6-Inch line spacing
Character size	10.5 point
Vertical tab position	Cleared
Horizontal tab positions	Every eight characters
Font selection	Last font selected on control panel
Special printing effects	Cancelled (except condensed printing)
Download character set	Hardware/control panel initialization: cleared Software initialization: deselected only

In addition, hardware and control panel initialization clears the data buffer.

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## Command Summary

### *Sending printer commands*

Most actions your printer performs are handled by your software. Software commands instruct the printer to print in a particular typeface, feed the paper a certain amount after printing each line, start printing a particular place on the page, and so on.

Some software programs let you send these commands yourself. The commands your printer recognizes are listed in this command summary.

How you format commands depends on the software you are using. Some software programs accept only the decimal format, while others let you type in ASCII characters. (Some programs don't let you insert printer commands at all.) In addition, your software probably specifies certain punctuation you must use to enter the command. If your software allows you to send commands to the printer, the software manual should explain exactly what format and punctuation are required.

### *Using the command summary*

The following section lists and describes all the commands by topic. If a command has no parameters, it is merely listed. If it has parameters, they are explained. The parameters are indicated by lowercase italicized letters, usually *n*. The examples below show how the parameters are indicated.

ESC @ is a command with no parameters.

ESC U 1 / 0 is a command that uses 1 to turn the feature on and 0 to turn it off.

ESC \$ *n1 n2* is a command with two parameters.

ESC D *nn* is a command with a variable number of parameters.

## Commands arranged by topic

### General operation

ASCII	Dec.	Hex.	Description
ESC@	64	40	Initialize Printer
ESC U I/O	85	55	Turn Unidirectional Mode On/ Off
ESC EM <i>n</i>	25	19	Control Paper Loading/Ejecting <i>n</i> = "R" Ejects the sheet

### Paper feeding

ASCII	Dec.	Hex.	Description
CR	13	0D	Carriage Return
FF	12	0C	Form Feed
LF	10	0A	Line Feed
ESC 0	48	30	Select 1/8-inch Line Spacing
ESC 2	50	32	Select 1/6-inch Line Spacing
ESC 3 <i>n</i>	51	33	Set <i>n</i> /180-inch Line Spacing
ESC + <i>n</i>	43	2B	Set <i>n</i> /360-inch Line Spacing

### Page format

ASCII	Dec.	Hex.	Description
ESC ( c <i>nn</i>	40 99	28 63	Set Page Format ESC ( c 4 0 <i>m1 m2 n1 n2</i> <i>m</i> = <i>m1</i> + <i>m2</i> × 256 <i>m</i> : Top margin in defined units <i>n</i> = <i>n1</i> + <i>n2</i> × 256 <i>n</i> : Bottom margin in defined units
ESC ( C <i>nn</i>	40 67	28 43	Set Page Length in Defined Unit ESC ( C 2 0 <i>n1 n2</i> <i>n</i> = <i>n1</i> + <i>n2</i> × 256 <i>n</i> : Number of defined units
ESC C <i>n</i>	67	43	Set Page Length in Lines <i>n</i> = Number of lines

ASCII	Dec.	Hex.	Description
ESC C 0 <i>n</i>	67	43	Set Page Length in Inches <i>n</i> = Number of inches
ESC N <i>n</i>	78	4E	Set Bottom Margin for Continuous Paper <i>n</i> = Number of lines
ESC 0	79	4F	Cancel Top/Bottom Margin for Continuous Paper
ESC l <i>n</i>	108	6C	Set Left Margin <i>n</i> = Left margin column
ESC Q <i>n</i>	81	51	Set Right Margin <i>n</i> = Right margin column

### *Print position motion*

ASCII	Dec.	Hex.	Description
ESC \$ <i>n1 n2</i>	36	24	Set Absolute Horizontal Print Position <i>n</i> = $n1 + n2 \times 256$ <i>n</i> : Specifies print position from left margin in defined units * Before you define the unit, the default is 1/60 inch for this command.
ESC \ <i>n1 n2</i>	92	5C	Set Relative Horizontal Print Position <i>n</i> = $n1 + n2 \times 256$ <i>n</i> : Moves current print position in defined units * Before you define the unit, the default is 1/120 inch in draft and 1/180 inch in LQ for this command.
ESC ( V <i>nn</i>	40 86	28 56	Set Absolute Vertical Print Position ESC ( V 2 0 <i>n1 n2</i> <i>n</i> = $n1 + n2 \times 256$ <i>n</i> : Specifies print position from top margin in defined units

ASCII	Dec.	Hex.	Description
ESC ( v <i>nm</i>	40 118	28 76	Set Relative Vertical Print Position ESC ( v 2 0 <i>n1 n2</i> $n = n1 + n2 \times 256$ <i>n</i> : Moves current print position in defined units
ESC D <i>nn</i>	68	44	Set Horizontal Tabs Up to 32 tabs entered in ascending order Terminated by 0
HT	9	09	Tab Horizontally
ESC B <i>nn</i>	66	42	Set Vertical Tabs Up to 16 tabs; last <i>n</i> should be 0
VT	11	0B	Tab Vertically
ESC J <i>n</i>	74	4A	Advance paper <i>n</i> / 180 inch

### Font selection

ASCII	Dec.	Hex.	Description
ESC k <i>n</i>	107	6B	Select Typeface <div style="display: flex; justify-content: space-between;"> <div> <i>n</i> = 0: Roman  1: Sans Serif  2: Courier </div> <div> 3: Prestige  10: Roman T  11: Sans Serif H </div> </div>

ASCII	Dec.	Hex.	Description
ESC X <i>nn</i>	88	58	<p>Select Font by Pitch and Point</p> <p>ESC X <i>m n1 n2</i></p> <p><i>m</i>: Set pitch to 360/<i>m</i> cpi</p> <p><i>m</i> = 0: No change in pitch</p> <p><i>m</i> = 1: Select proportional</p> <p><i>m</i> = 0, 1, 18, 21, 24, 30, 36, 42, 48, 60, or 72</p> <p><i>n</i> = <math>n1 + n2 \times 256</math></p> <p><i>n</i>: Set point size in 0.5 points</p> <p>Total points = <math>(n1 + n2 \times 256) \times 0.5</math></p> <p><i>n</i> = 0: No change in point</p> <p><i>n</i> = 0, 16, 21, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60, or 64 (for Roman, Sans Serif Roman T, and Sans Serif H.)</p> <p><i>n</i> = 0, 21, 42 (for other typefaces)</p> <p>* Cancel ESC X with ESC P, M g, p, !, or @</p>
ESC P	80	50	Select 10.5 point, 10 cpi
ESC M	77	4D	Select 10.5 point, 12 cpi
ESC g	103	67	Select 10.5 point, 15 cpi
ESC p I/O	112	70	Turn Proportional Mode On/Off
ESC x <i>n</i>	120	78	<p>Select LQ or Draft</p> <p><i>n</i> = 0: Draft</p> <p>1: LQ</p> <p>* Draft speed is the same as LQ speed.</p>
ESC 4	52	34	Select Italic Font
ESC 5	53	35	Cancel Italic Font
ESC E	69	45	Select Bold Font
ESC F	70	46	Cancel Bold Font

ASCII	Dec.	Hex.	Description
ESC ! <i>n</i>	33	21	Master Select To find the value of <i>n</i> , add together the numbers of the font attributes and enhancements you want to combine from the list below: <i>n</i> = 0: 10 cpi      16: Double-strike 1: 12 cpi      32: Double-width 2: Proportional   64: Italic 4: Condensed   128: Underline 8: Bold

### *font enhancement*

ASCII	Dec.	Hex.	Description
SI	15	0F	Select Condensed Printing
DC2	18	12	Cancel Condensed Printing
s o	14	0E	Select Double-Width Printing (one line)
ESC W 1/0	87	57	Turn Double-Width Printing On/Off
DC4	20	14	Cancel Double-Width Printing (one line)
ESC w 1/0	119	77	Turn Double-Height Printing On/ Off
ESC G	71	47	Select Double-Strike Printing
ESC H	72	48	Cancel Double-Strike Printing
ESC S 0	83	53	Select Superscript Printing
ESC S 1	83	53	Select Subscript Printing
ESC T	84	54	Cancel Superscript/Subscript Printing

ASCII	Dec.	Hex.	Description
ESC ( - <i>nm</i>	40 45	28 2D	Select Line/Score ESC ( - 3 0 1 <i>n1 n2</i> <i>n1</i> = 1: Underline 2: <b>Strikethrough</b> 3: <b>Overscore</b> <i>n2</i> = 0: Cancel score line selected by <i>n1</i> 1: Single continuous line 2: Double continuous line 5: Single broken line 6: Double broken line
ESC - 1/0	45	2D	<b>Turn</b> Underline On/ Off
ESC q <i>n</i>	113	71	Select Character Style <i>n</i> = 0: <b>Normal style</b> 1: Outline 2: Shadow 3: Outline with shadow

## Spacing

ASCII	Dec.	Hex.	Description
ESC SP <i>n</i>	32	20	Set <b>Intercharacter</b> Space <i>n</i> = Number of units of space added to the space between characters Units are 1/120 inch (draft) and 1/180 inch ( <b>LQ</b> and proportional)
ESC ( U <i>nm</i>	40 85	28 55	Define Unit ESC ( U 1 0 <i>n</i> Define positioning unit as <i>n</i> /3600 inch <i>n</i> = 10, 20, 30, 40, 50, or 60 <i>n</i> = 10: default
ESC c <i>n1 n2</i>	99	63	Set Horizontal Motion Index ( <b>HMI</b> ) Select Pitch in <i>n</i> /360-inch units Total units = <i>n1</i> + <i>n2</i> × 256



## Character handling

<b>A S C I I</b>	<b>Dec.</b>	<b>Hex.</b>	<b>Description</b>
<b>ESC ( t m</b>	<b>40 116</b>	<b>28 74</b>	Assign Character Table <b>ESC ( t 3 0 d1 d2 d3</b> Assign character table set with <b>d2</b> and <b>d3</b> to table <b>d1</b> <b>d1 = 0, 1, 2, 3, 48, 49, 50, or 51</b> <b>d2 d3</b> Character Table 0 0 Italic 1 0 PC <b>437</b> (USA) 1 16 PC <b>437</b> Greek (Greek) 3 0 P C <b>850</b> (Multilingual) 5 0 PC <b>853</b> (Turkish)* 6 0 P C <b>855</b> (Cyrillic)* 7 0 PC <b>860</b> (Portuguese) 8 0 PC <b>863</b> (Canadian-French) 9 0 PC <b>865</b> (Nordic) 10 0 PC <b>852</b> (East Europe)* 11 0 PC <b>857</b> (Turkish) 14 0 PC <b>866</b> (Russia)* 15 0 P C <b>869</b> (Greek)* 24 0 PC <b>861</b> (Icelandic) 25 0 BRASCII (Braz.Port.) 26 0 Abicomp (Braz. Port.) 27 0 MAZOWIA (Poland)* 28 0 Code MJK (CSFR)* 29 7 ISO-8859-7 (Latin/ Greek) 31 0 ISO Latin 1T (Turkish) 32 0 Bulgaria (Bulgaria)* * Available only in certain areas
<b>ESC t n</b>	<b>116</b>	<b>74</b>	Select Character Table Select character table <b>n</b> assigned by <b>ESC ( t</b> <b>n = 0, 1, 2, 3, 48, 49, 50, or 51</b> <b>n = 2:</b> Remaps download characters from 0 - <b>127</b> to <b>128 - 255</b> , unless a character table has been assigned to 2 with the <b>ESC ( t</b> command

ASCII	Dec.	Hex.	Description
ESC R <i>n</i>	82	52	Select an International Character Set <i>n</i> = 0: USA                      7: Spain I 1: France                      8: Japan 2: Germany                    9: Norway 3: UK                            10: Denmark II 4: Denmark I                11: Spain II 5: Sweden                    12: Latin America 6: Italy                        13: Korea 64: Legal
ESC & <i>nn</i>	38	26	Define User-Defined Character ESC & 0 <i>n1 n2 d0 d1 d2 data</i> <i>n1</i> = First character number <i>n2</i> = Last character number <i>d0</i> = Left space of character <i>d1</i> = Body width of character <i>d2</i> = Right space of character data: 3 bytes required for each character; super/subscript requires only 2 bytes per character
ESC : 0 <i>n</i> 0	58	3A	Copy ROM to RAM <i>n</i> = 0, 1, 2, 3, 10, or 11 <i>n</i> : Typeface (see list in ESC <i>k</i> command description)
ESC % <i>n</i>	37	25	Select User-Defined Set <i>n</i> = 0: Normal set 1: User-defined set
ESC 6	54	36	Enable Printing of Upper Control Codes This command enables the printing of codes 128-159 (if current table has characters in those locations).
ESC 7	55	37	Enable Upper Control Codes Cancels ESC 6
ESC ( ^ <i>nn</i>	40 94	28 5E	Print Data as Characters ESC ( ^ <i>n1 n2 data</i> <i>n</i> = <i>n1</i> + <i>n2</i> × 256 <i>n</i> : Amount of data data: The following <i>n</i> bytes of data printed as characters

## Bit image

ASCII	Dec.	Hex.	Description
ESC * <i>nn</i>	42	2A	Select Bit Image ESC * <i>m n1 n2</i> $n = n1 + n2 \times 256$ <i>n</i> : Total columns Total data = $(n1 + n2 \times 256) \times t$ <i>t</i> = Number of data bytes per column

<i>m</i>	Horizontal density (dpi)	Vertical density (dpi)	Pins	Adjacent dots print	<i>t</i>
0	60	60	8	Yes	1
1	120	60	8	Yes	1
2	120	60	8	No	1
3	240	60	8	No	1
4	80	60	8	Yes	1
6	90	60	24	Yes	1
32	60	180	24	Yes	3
33	120	180	24	Yes	3
38	90	180	24	Yes	3
39	180	180	24	Yes	3
40	360	180	24	No	3
71	180	360	48	Yes	6
72	360	360	48	No	6
73	360	360	48	Yes	6

## Graphics

ASCII	Dec.	Hex.	Description
ESC ( G <i>nn</i>	4071	2847	Select Graphics Mode ESC ( G 1 0 <i>n</i> <i>n</i> = 1 or 49 * Cancel Graphics mode with ESC @

ASCII	Dec.	Hex.	Description
ESC . <i>nn</i>	46	2E	Print Raster Graphics <b>ESC . <i>c v h m n1 n2 data</i></b> <i>c</i> = 0: Full graphics mode 1: Compressed mode <i>v</i> = 10, 20: Dot density for vertical in 3600/ <i>v</i> DPI <i>h</i> = 10, 20: Dot density for horizontal in 3600/ <i>h</i> DPI <i>m</i> : Number of vertical dots 1 ≤ <i>m</i> ≤ 24 <i>n</i> : Number of horizontal dots Total dots = <i>n1</i> + <i>n2</i> × 256 * The following combination is not allowed: <i>v</i> = 10 and <i>h</i> = 20

## Character Tables

These character tables are selected with the default-setting mode or by using a command.

All tables except the italic character table are the same as the PC437 table for hex codes **00** through **7F**, so only the PC437 table is shown completely. The rest of the tables show only the characters for hex codes **80** through **FF**.

The tables with an asterisk(“) after the table name are available in certain areas only.

### PC437 (USA, standard Europe)

CODE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL			0	@	P	`	p	Ç	É	Á	␣	␣	␣	␣	≡
1			!	1	A	Q	a	q	ü	æ	í	␣	␣	␣	␣	±
2		DC2	"	2	B	R	b	r	é	Æ	ó	␣	␣	␣	␣	≥
3			#	3	C	S	c	s	â	ô	ú	␣	␣	␣	␣	≤
4		DC4	\$	4	D	T	d	t	ä	ö	ñ	␣	␣	␣	␣	⌋
5		S	%	5	E	U	e	u	à	ò	â	␣	␣	␣	␣	⌈
6			&	6	F	V	f	v	â	û	ä	␣	␣	␣	␣	⌋
7			'	7	G	W	g	w	ç	ù	Q	␣	␣	␣	␣	≈
8			(	8	H	X	h	x	ê	ÿ	¿	␣	␣	␣	␣	•
9	HT	EM	)	9	I	Y	i	y	è	Û	¸	␣	␣	␣	␣	°
A	LF		*	:	J	Z	j	z	è	Ü	¸	␣	␣	␣	␣	Ω
B	VT	ESC	+	;	K	[	k	{	ï	Φ	¸	␣	␣	␣	␣	δ
C	FF		,	<	L	\	l	}	ï	£	¸	␣	␣	␣	␣	␣
D	CR		-	=	M	]	m	~	ï	¥	¸	␣	␣	␣	␣	␣
E	SO		.	>	N	^	n		ï	℥	¸	␣	␣	␣	␣	€
F	SI		/	?	O	_	o		ï	ƒ	¸	␣	␣	␣	␣	␣

# PC850 (Multilingual)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	Á	␣	Ł	Đ	Ó	±
1	Ü	Ê	Â	␣	Ł	Ð	Ô	±
2	É	Ë	Ó	␣	Ł	Ñ	Õ	±
3	Â	Ô	Ú	␣	Ł	Ŋ	Ö	±
4	À	Ò	Ŋ	␣	Ł	Ŋ	Ø	±
5	À	Ò	Ŋ	␣	Ł	Ŋ	Š	±
6	À	Ò	Ŋ	␣	Ł	Ŋ	Ŋ	±
7	Ç	Û	Ŋ	␣	Ł	Ŋ	Ŋ	±
8	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
9	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
A	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
B	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
C	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
D	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
E	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
F	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±

# PC860 (Portuguese)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	Á	␣	Ł	Đ	Ó	±
1	Ü	Ê	Â	␣	Ł	Ð	Ô	±
2	É	Ë	Ó	␣	Ł	Ñ	Õ	±
3	Â	Ô	Ú	␣	Ł	Ŋ	Ö	±
4	À	Ò	Ŋ	␣	Ł	Ŋ	Ø	±
5	À	Ò	Ŋ	␣	Ł	Ŋ	Š	±
6	À	Ò	Ŋ	␣	Ł	Ŋ	Ŋ	±
7	Ç	Û	Ŋ	␣	Ł	Ŋ	Ŋ	±
8	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
9	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
A	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
B	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
C	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
D	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
E	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
F	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±

# PC863 (Canadian-French)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	Á	␣	Ł	Đ	Ó	±
1	Ü	Ê	Â	␣	Ł	Ð	Ô	±
2	É	Ë	Ó	␣	Ł	Ñ	Õ	±
3	Â	Ô	Ú	␣	Ł	Ŋ	Ö	±
4	À	Ò	Ŋ	␣	Ł	Ŋ	Ø	±
5	À	Ò	Ŋ	␣	Ł	Ŋ	Š	±
6	À	Ò	Ŋ	␣	Ł	Ŋ	Ŋ	±
7	Ç	Û	Ŋ	␣	Ł	Ŋ	Ŋ	±
8	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
9	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
A	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
B	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
C	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
D	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
E	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
F	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±

# PC865 (Norwegian)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	Á	␣	Ł	Đ	Ó	±
1	Ü	Ê	Â	␣	Ł	Ð	Ô	±
2	É	Ë	Ó	␣	Ł	Ñ	Õ	±
3	Â	Ô	Ú	␣	Ł	Ŋ	Ö	±
4	À	Ò	Ŋ	␣	Ł	Ŋ	Ø	±
5	À	Ò	Ŋ	␣	Ł	Ŋ	Š	±
6	À	Ò	Ŋ	␣	Ł	Ŋ	Ŋ	±
7	Ç	Û	Ŋ	␣	Ł	Ŋ	Ŋ	±
8	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
9	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
A	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
B	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
C	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
D	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
E	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±
F	Ê	Ŋ	Ŋ	␣	Ł	Ŋ	Ŋ	±

## PC861 (Icelandic)

CODE	8	9	A	B	C	D	E	F
0	Ç	É	Á		Ł	Ł	α	≡
1	Ü	Æ	Í		Ł	Ł	β	±
2	É	Æ	Ó		Ł	Ł	Γ	≤
3	À	Ö	Á		Ł	Ł	Π	≥
4	À	Ö	Á		Ł	Ł	Σ	≤
5	À	Ö	Á		Ł	Ł	Ο	≤
6	À	Ö	Á		Ł	Ł	μ	÷
7	Ç	Ý	Ó		Ł	Ł	τ	÷
8	È	Ý	Ö		Ł	Ł	θ	÷
9	È	Ü	Ö		Ł	Ł	Ω	÷
A	È	Ø	Ö		Ł	Ł	ø	÷
B	È	Ø	Ö		Ł	Ł	ø	÷
C	È	Ø	Ö		Ł	Ł	ø	÷
D	È	Ø	Ö		Ł	Ł	ø	÷
E	È	Ø	Ö		Ł	Ł	ø	÷
F	È	Ø	Ö		Ł	Ł	ø	÷

## BRASCI (Braz. Portuguese)

CODE	8	9	A	B	C	D	E	F
0	NUL				À	Ð	à	ð
1					Á	Ñ	á	ñ
2		DC2			Â	Ò	â	ò
3					Ã	Ó	ã	ó
4		DC4			Ä	Ô	ä	ô
5					Å	Õ	å	õ
6					Æ	Ö	æ	ö
7					Ç	Ø	ç	ø
8					È	Ø	è	ø
9	HT	EM			É	Ù	é	ù
A	LF				Ê	Ú	ê	ú
B	VT	ESC			Ë	Û	ë	û
C	FF				Ì	Ü	ì	ü
D	CR				Í	Ý	í	ý
E	SO				Î	Þ	î	þ
F	SI				Ï	ß	ï	ÿ

## Abicomp (Braz. Portuguese)

CODE	8	9	A	B	C	D	E	F
0	NUL				Ò	Ì	ò	
1			À		Ó	À	ó	
2		DC2	À		Ô	À	ô	
3			À		Õ	À	õ	
4		DC4	À		Ö	À	ö	
5			À		Ø	À	ø	
6			Ç		Ù	Ç	ù	
7			È		Ú	È	ú	
8			È		Û	È	û	
9	HT	EM	È		Ü	È	ü	
A	LF		È		Ý	È	ý	
B	VT	ESC	È		Û	È	Û	
C	FF		È		Û	È	Û	
D	CR		È		Û	È	Û	
E	SO		È		Û	È	Û	
F	SI		È		Û	È	Û	DEL

## PC437 Greek (Greek)\*

CODE	8	9	A	B	C	D	E	F
0	A	P	ı		Ł	Ł	ω	Ω
1	B	Σ	κ		Ł	Ł	ά	±
2	Γ	Τ	λ		Ł	Ł	έ	≤
3	Δ	Υ	μ		Ł	Ł	ή	≥
4	E	Φ	ν		Ł	Ł	ί	≤
5	Z	X	ξ		Ł	Ł	ί	≤
6	H	Ψ	ο		Ł	Ł	ό	÷
7	Θ	Ω	π		Ł	Ł	ύ	÷
a	I	α	ρ		Ł	Ł	ύ	÷
9	K	θ	σ		Ł	Ł	ώ	÷
A	Λ	γ	ς		Ł	Ł	Α	÷
B	M	δ	τ		Ł	Ł	Ε	÷
C	N	ε	υ		Ł	Ł	Η	÷
D	Ξ	ζ	φ		Ł	Ł	Ι	÷
E	O	η	χ		Ł	Ł	Υ	÷
F	Π	θ	ψ		Ł	Ł	Υ	÷

PC869 (Greek)\*

CODE	8	9	A	B	C	D	E	F
0	Ι	ι	Α	α	Τ	τ	Ζ	ζ
1	Ι	ι	Α	α	Τ	τ	Ζ	ζ
2	Ο	ο	Β	β	Υ	υ	Θ	θ
3			Υ	υ	Χ	χ	Ι	ι
4			Α	α	Ψ	ψ	Κ	κ
5		Υ	Β	β	Ω	ω	Λ	λ
6	Α	Υ	Γ	γ	Π	π	Μ	μ
7		Θ	Δ	δ	Ρ	ρ	Ν	ν
8		Ω	Ε	ε	Σ	σ	Ξ	ξ
9	Α	Υ	Ζ	ζ	Η	η	Ο	ο
A	Α	Υ	Ζ	ζ	Η	η	Ο	ο
B	Α	Υ	Ζ	ζ	Η	η	Ο	ο
C	Α	Υ	Ζ	ζ	Η	η	Ο	ο
D	Α	Υ	Ζ	ζ	Η	η	Ο	ο
E	Α	Υ	Ζ	ζ	Η	η	Ο	ο
F	Α	Υ	Ζ	ζ	Η	η	Ο	ο

ISO 8859-7 (Latin/Greek)\*

CODE	8	9	A	B	C	D	E	F
0					Ι	Π	Υ	Π
1					Α	Ρ	α	ρ
2					Β		β	ς
3					Γ	Σ	γ	σ
4					Δ	Τ	δ	τ
5					Ε	Υ	ε	υ
6					Ζ	Φ	ζ	φ
7					Η	Χ	η	χ
8					Θ	Ψ	θ	ψ
9					Ι	Ω	ι	ω
A					Κ	Υ	κ	ι
B					Λ	Υ	λ	υ
C					Μ	Ν	μ	ν
D					Ξ	Ο	ξ	ο
E					Υ	Ι	υ	ι
F					Ω	Ο	ω	ο

PC853 (Turkish)\*

CODE	8	9	A	B	C	D	E	F
0	Ç	ç	Á	á	Ł	Ó	-	
1	Ü	ü	İ	ı	Ł	Ö	±	
2	É	é	Ó	ó	Ł	Ö	h	
3	Ä	ä	Ú	ú	Ł	Ö	h	
4	Ä	ä	Ń	ń	Ł	Ö	h	
5	Ä	ä	Ń	ń	Ł	Ö	h	
6	Ä	ä	Ń	ń	Ł	Ö	h	
7	Ç	ç	İ	ı	Ł	Ö	h	
8	È	è	İ	ı	Ł	Ö	h	
9	È	è	İ	ı	Ł	Ö	h	
A	È	è	İ	ı	Ł	Ö	h	
B	È	è	İ	ı	Ł	Ö	h	
C	È	è	İ	ı	Ł	Ö	h	
D	È	è	İ	ı	Ł	Ö	h	
E	È	è	İ	ı	Ł	Ö	h	
F	È	è	İ	ı	Ł	Ö	h	

PC857 (Turkish)\*

CODE	8	9	A	B	C	D	E	F
0	Ç	ç	Á	á	Ł	Ö	-	
1	Ü	ü	İ	ı	Ł	Ö	±	
2	É	é	Ó	ó	Ł	Ö	h	
3	Ä	ä	Ú	ú	Ł	Ö	h	
4	Ä	ä	Ń	ń	Ł	Ö	h	
5	Ä	ä	Ń	ń	Ł	Ö	h	
6	Ä	ä	Ń	ń	Ł	Ö	h	
7	Ç	ç	İ	ı	Ł	Ö	h	
8	È	è	İ	ı	Ł	Ö	h	
9	È	è	İ	ı	Ł	Ö	h	
A	È	è	İ	ı	Ł	Ö	h	
B	È	è	İ	ı	Ł	Ö	h	
C	È	è	İ	ı	Ł	Ö	h	
D	È	è	İ	ı	Ł	Ö	h	
E	È	è	İ	ı	Ł	Ö	h	
F	È	è	İ	ı	Ł	Ö	h	



# ISO Latin 1T (Turkish)\*

CODE	8	9	A	B	C	D	E	F
0			•	•	•	•	•	•
1			ı	ı	ı	ı	ı	ı
2			ç	ç	ç	ç	ç	ç
3			ş	ş	ş	ş	ş	ş
4			ö	ö	ö	ö	ö	ö
5			ı	ı	ı	ı	ı	ı
6			ı	ı	ı	ı	ı	ı
7			ı	ı	ı	ı	ı	ı
8			ı	ı	ı	ı	ı	ı
9			ı	ı	ı	ı	ı	ı
A			ı	ı	ı	ı	ı	ı
B			ı	ı	ı	ı	ı	ı
C			ı	ı	ı	ı	ı	ı
D			ı	ı	ı	ı	ı	ı
E			ı	ı	ı	ı	ı	ı
F			ı	ı	ı	ı	ı	ı

# PC555 (Cyrillic)\*

CODE	8	9	A	B	C	D	E	F
0	ђ	љ	а	б	в	г	д	е
1	џ	њ	а	б	в	г	д	е
2	џ	њ	а	б	в	г	д	е
3	ђ	љ	а	б	в	г	д	е
4	ђ	љ	а	б	в	г	д	е
5	ђ	љ	а	б	в	г	д	е
6	ђ	љ	а	б	в	г	д	е
7	ђ	љ	а	б	в	г	д	е
8	ђ	љ	а	б	в	г	д	е
9	ђ	љ	а	б	в	г	д	е
A	ђ	љ	а	б	в	г	д	е
B	ђ	љ	а	б	в	г	д	е
C	ђ	љ	а	б	в	г	д	е
D	ђ	љ	а	б	в	г	д	е
E	ђ	љ	а	б	в	г	д	е
F	ђ	љ	а	б	в	г	д	е

# PC866 (Russian)\*

CODE	8	9	A	B	C	D	E	F
0	А	Б	а	б	в	г	д	е
1	В	Г	в	г	д	е	ж	з
2	Г	Д	г	д	е	ж	з	и
3	Д	Е	д	е	ж	з	и	й
4	Е	Ж	е	ж	з	и	й	к
5	Ж	З	ж	з	и	й	к	л
6	З	И	з	и	й	к	л	м
7	И	Й	и	й	к	л	м	н
8	Й	К	й	к	л	м	н	о
9	К	Л	к	л	м	н	о	п
A	Л	М	л	м	н	о	п	р
B	М	Н	м	н	о	п	р	с
C	Н	О	н	о	п	р	с	т
D	О	П	о	п	р	с	т	у
E	П	Р	п	р	с	т	у	ф
F	Р	С	р	с	т	у	ф	х

# PC552 (East Europe)\*

CODE	8	9	A	B	C	D	E	F
0	Č	Ď	á	á	á	á	á	á
1	č	ď	í	í	í	í	í	í
2	ě	ě	í	í	í	í	í	í
3	ě	ě	í	í	í	í	í	í
4	ě	ě	í	í	í	í	í	í
5	ě	ě	í	í	í	í	í	í
6	ě	ě	í	í	í	í	í	í
7	ě	ě	í	í	í	í	í	í
8	ě	ě	í	í	í	í	í	í
9	ě	ě	í	í	í	í	í	í
A	ě	ě	í	í	í	í	í	í
B	ě	ě	í	í	í	í	í	í
C	ě	ě	í	í	í	í	í	í
D	ě	ě	í	í	í	í	í	í
E	ě	ě	í	í	í	í	í	í
F	ě	ě	í	í	í	í	í	í

# MAZOWIA (Poland)\*

CODE	8	9	A	B	C	D	E	F
0	Ç	Ė	Ż	⋯	L	⊥	α	≡
1	Û	ę	ż	⋯	⊥	⊥	β	±
2	é	ı	Ó	⋯	⊥	⊥	Γ	≥
3	â	ô	ń	⋯	⊥	⊥	Π	≤
4	ä	ö	ñ	⋯	⊥	⊥	Σ	⋈
5	à	ć	Ń	⋯	⊥	⊥	σ	⋈
6	ą	û	ż	⋯	⊥	⊥	μ	÷
7	ç	ù	ś	⋯	⊥	⊥	τ	≈
8	ê	š	Ō	⋯	⊥	⊥	ϕ	°
9	ë	š	Ō	⋯	⊥	⊥	θ	·
A	è	Ů	ŕ	⋯	⊥	⊥	Ω	·
B	ı	ż	ŕ	⋯	⊥	⊥	δ	·
C	ı	ż	ŕ	⋯	⊥	⊥	ε	·
D	ı	ż	ŕ	⋯	⊥	⊥	ø	·
E	ı	ż	ŕ	⋯	⊥	⊥	ε	·
F	ı	ż	ŕ	⋯	⊥	⊥	ε	·

# Code MJK (CSFR)\*

CODE	8	9	A	B	C	D	E	F
0	Č	Ě	á	⋯	L	⊥	α	≡
1	Û	ž	í	⋯	⊥	⊥	β	±
2	é	ž	ó	⋯	⊥	⊥	Γ	≥
3	ď	ž	ú	⋯	⊥	⊥	Π	≤
4	ä	ö	ň	⋯	⊥	⊥	Σ	⋈
5	ď	ó	ň	⋯	⊥	⊥	σ	⋈
6	ť	ú	ô	⋯	⊥	⊥	μ	÷
7	č	š	š	⋯	⊥	⊥	τ	≈
8	ě	š	ř	⋯	⊥	⊥	ϕ	°
9	ě	š	ř	⋯	⊥	⊥	θ	·
A	ı	š	ř	⋯	⊥	⊥	Ω	·
B	ı	š	ř	⋯	⊥	⊥	δ	·
C	ı	š	ř	⋯	⊥	⊥	ε	·
D	ı	š	ř	⋯	⊥	⊥	ø	·
E	ı	š	ř	⋯	⊥	⊥	ε	·
F	ı	š	ř	⋯	⊥	⊥	ε	·

# Bulgaria (Bulgaria) \*

CODE	8	9	A	B	C	D	E	F
0	А	Р	а	р	L	⋯	α	≡
1	Б	С	б	с	⊥	⋯	β	±
2	В	Т	в	т	⊥	⋯	Γ	≥
3	Г	У	г	у	⊥	⋯	Π	≤
4	Д	Ф	д	ф	⊥	⋯	Σ	⋈
5	Е	Х	е	х	⊥	⋯	σ	⋈
6	Ж	Ц	ж	ц	⊥	⋯	μ	÷
7	З	Ч	з	ч	⊥	⋯	τ	≈
8	И	Ш	и	ш	⊥	⋯	ϕ	°
9	Й	Щ	й	щ	⊥	⋯	θ	·
A	К	Ъ	к	ъ	⊥	⋯	Ω	·
B	Л	Ы	л	ы	⊥	⋯	δ	·
C	М	Ь	м	ь	⊥	⋯	ε	·
D	Н	Э	н	э	⊥	⋯	ø	·
E	О	Ю	о	ю	⊥	⋯	ε	·
F	П	Я	п	я	⊥	⋯	ε	·

## Italic

CODE	8	9	A	B	C	D	E	F
0	NUL			0	@	P	`	p
1			!	1	A	Q	a	q
2		DC2	"	2	B	R	b	r
3			#	3	C	S	c	s
4		DC4	\$	4	D	T	d	t
5			%	5	E	U	e	u
6			&	6	F	V	f	v
7			'	7	G	W	g	w
8			(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF		*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF		,	<	L	\	l	
D	CR		-	=	M	]	m	}
E	SO		.	>	N	^	n	~
F	SI		/	?	O	_	o	

No characters are available for hex code **15** in the italic character table.

## International character sets

You can select one of the following **international** character sets with the default-setting mode or the **ESC R** command. For example, when you select “Italic France,” the characters in the “France” row on the table below are used in the italic character table.

The following eight **international** character sets can be selected with the default-setting mode or with the **ESC R** command.

Country	ASCII code hex												
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E	
USA	#	\$	@	[	\	]	^	'	{		}	~	
France	#	\$	à	°	ç	§	^	'	é	ù	è	™	
Germany	#	\$	§	Ä	Ö	Ü	^	'	ä	ö	ü	ß	
UK	£	\$	@	[	\	]	^	'	{		}	~	
Denmark	#	\$	@	Æ	Ø	Å	^	'	æ	ø	å	~	
Sweden	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü	
Italy	#	\$	@	°	\	é	^	ù	à	ò	è	ì	
Spain	Pt	\$	@	¡	Ñ	¿	^	'	”	À	}	~	

The following seven additional sets can be selected only with the **ESC R** command.

Country	ASCII code hex												
	23	24	40	5B	5C	5D	5E	60	7B	7C	7D	7E	
Japan	#	\$	@	[	¥	]	^	'	{		}	~	
Norway	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü	
Denmark II	#	\$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü	
Spain II	#	\$	á	¡	Ñ	¿	é	'	í	ñ	ó	ú	
Latin America	#	\$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú	
Korea	#	\$	@	[	₩	]	^	'	{		}	~	
Legal	#	\$	§	°	'	”	¶	'	©	®	†	™	

## Characters available with the ESC ( ^ command

To print the characters in the table below, first send the ESC ( ^ command.

CODE	0	1	7
0		►	
1	☺	◄	
2	⊗	↕	
3	♥	!!	
4	♦	⌂	
5	♣		
6	●	📄	
7	•	⤵	
8	■	↑	
9	○	↓	
A	◻	→	
B	♂	←	
C	♀	↵	
D	♪	↔	
E	♫	▲	
F	⚙	▼	△

---

# Glossary

The following definitions apply specifically to printers.

## **ASCII**

American Standard Code for Information Interchange. A standardized coding system for assigning numerical codes to letters and symbols.

## auto **line** feed

When this feature is selected in the default-setting mode, each **carriage-return** code (CR) is automatically followed by a line-feed (**LF**) code.

## **bidirectional printing**

Printing in which the print head prints in both directions. This increases the speed of printing.

## **bit**

A binary digit (0 or 1), which is the **smallest** unit of information used by a printer or computer.

## **butter**

The portion of the printer's memory used to store data before printing it.

## **byte**

A unit of information consisting of eight bits.

## **characters per inch (cpi)**

A measure of the size of text characters, sometimes referred to as pitch.

## **character table**

A collection of letters, numbers, and symbols that provides you with the characters used in a particular language.

## **condensed printing**

Printing in which the width of each character is approximately **60%** of the width of standard characters. Useful for fitting wide tables or spreadsheets onto the paper.

## **control code**

Special codes used to control printer functions such as performing a carriage **return** or line feed.

## **cpi**

See *characters per inch*.

## **default**

A value or setting that takes effect when the equipment is **turned** on, reset, or initialized.

## **dot matrix**

A method of printing in which each letter or symbol is formed by a **pattern** (matrix) of individual dots.

**double-height printing**

Printing in which each character is twice as **tall** as normal.

**double-width printing**

Printing in which each character is twice as wide as normal.

**driver, printer**

The part of a software program that contains commands for a particular printer.

**ESC/P**

Abbreviation for **EPSON** Standard Code for Printers. This system of commands gives you software control of your printer from your computer. It is standard for all EPSON printers and supported by most application software for personal computers.

**ESC/P 2**

The enhanced version of the **ESC/P** printer command language. Commands in this language produce laser-like features, such as scalable fonts and enhanced graphics printing.

**font**

A font is a style of type designated by a family name.

**hex dump**

A troubleshooting feature that helps advanced users find the cause of communication problems between the printer and the computer. When the printer is in hex dump mode, it prints each code it receives in hexadecimal notation and ASCII characters. Also called data dump.

**initialization**

Returns the printer to its defaults (**fixed** set of conditions).

**ink jet**

A method of printing in which each letter or symbol is formed by precisely spraying ink onto paper.

**interface**

The connection between the computer and the printer. A parallel interface transmits data one character or code at a time.

**italic**

A **typestyle** in which the characters slant. *This sentence is italicized.*

**line feed**

A control code that advances the paper one line space.

**loading position**

The position to which the paper is automatically loaded.

**LQ printing**

One of the two print qualities available on your printer. **LQ** (letter quality) printing provides better **readability** and appearance at a reduced print speed.

**parallel interface**

See *interface*.

**printable area**

The area of a page on which the **printer** can print. It is smaller than the physical size of the page due to margins.

**printer driver**

The part of a software program that contains commands for a particular **printer**.

**proportional printing**

Printing in which the width of the character varies from character to character. For example, a capital **W** receives much more space than a lowercase **i**. The result looks more like a typeset book than a typewritten draft.

**RAM**

Random Access Memory. The portion of the printer's memory used as a buffer and for storing user-defined characters. **All** data stored in RAM is lost when the printer is turned off.

**reset**

To **return** a printer to its defaults either by sending a command, an **INIT** signal, or by turning the printer off and then back on.

**ROM**

Read Only Memory. A portion of memory that can only be read and cannot be used for data storage. ROM retains its contents when you **turn** off the printer.

**self test**

A method for checking the operation of the printer. When you run the self test, the printer prints the characters stored in its ROM.

**software program**

A software program that helps you carry out a particular task, **such as** word processing or financial planning.

**superscript**

Printing in which each character is printed at about two-thirds the normal height in the upper part of the character space.

**unidirectional printing**

Printing in which the print head prints in one direction only. Unidirectional printing is useful for printing graphics because it allows more precise vertical alignment than bidirectional printing.

**user-defined characters**

Characters that are defined and stored in the printer by the user. Also called download characters.



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Command descriptions are not indexed here. For information on a specific command, see the Appendix.

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